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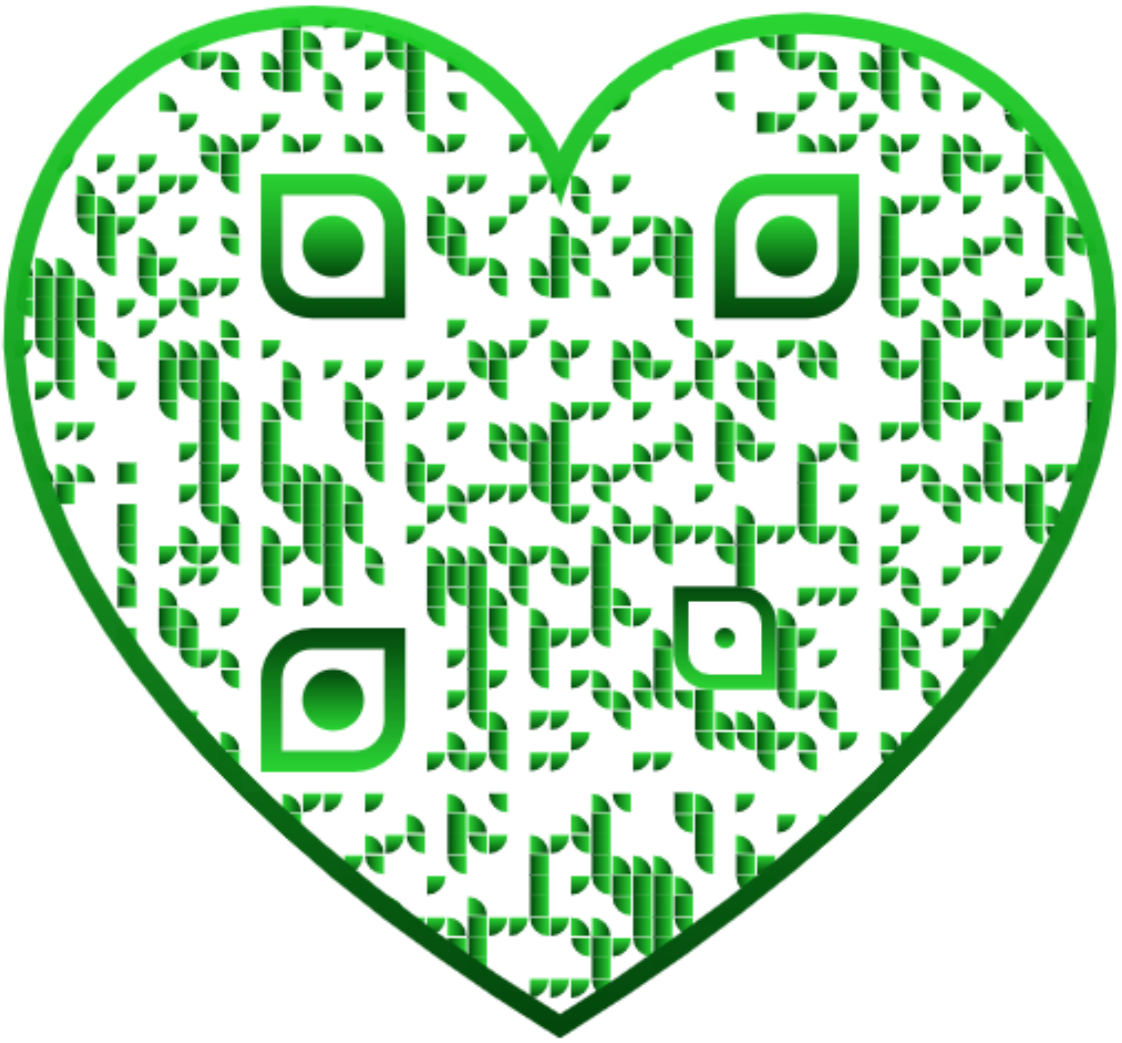

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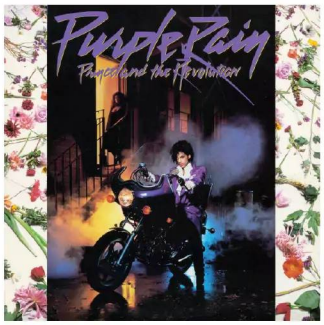

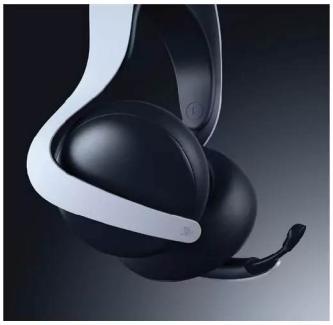

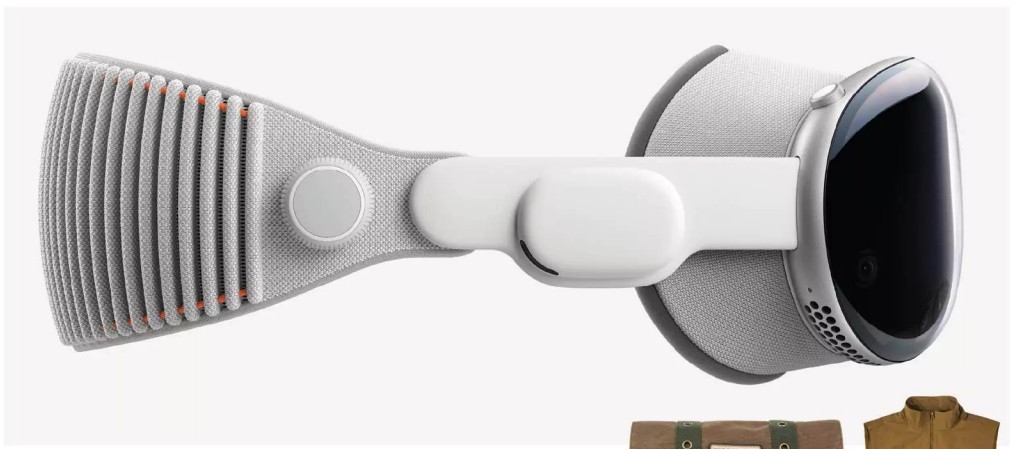

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The Even Bigger Picture

BACK IN January, in a column I titled "The Big Picture," I discussed the expansion of large TV screens and how CES hinted at future trends. Now, in the midst of summer, "100-inch-class" TVs are being shipped by all major brands, while 85-inch TVs have become surprisingly affordable and are selling rapidly.

These significant shifts have had startling effects. At a Hisense press event, it was revealed that sales of 85-inch TVs had increased thirteenfold over the previous year, and the company struggled to meet the overwhelming demand for 98-inch TVs. Samsung has also stepped into the fray with a 98-inch Crystal UHD model priced at an MSRP of $3,999, available at Costco and Sam's Club. This size is no longer a niche market. One can't help but ponder the price drops these TVs might see by Black Friday, especially considering that a 98-inch TCL is currently priced at $2,500 at Best Buy. The road ahead seems filled with even more dramatic price shifts. These prices compete directly with UST projectors.

While it might be tempting to get nostalgic over past media consumption trends, the relentless advance of technology continually disrupts old paradigms. As I've noted before, we've now entered an era where cinematic screen sizes are not only desirable but also financially attainable through the purchase of TVs. A discerning buyer can now equip their living room with a system that, in some aspects, surpasses dedicated home theaters of the past thanks to HDR—and particularly so for those who enjoy a variety of content beyond just films.

The choice boils down to whether one aims for the best personal experience or to create a communal viewing atmosphere. This is similar to choosing between investing in a stereo system or high-fidelity headphones. The booming growth of the headphone sector is no secret; Apple now earns more from AirPods sales than the entire consumer speaker industry combined.

Dedicated home theaters are excellent for group entertainment, offering multiple rows of seating to accommodate friends and family in an ideal audio-visual environment. However, from my experience—and this isn't rare—it's often challenging to engage others in an activity that isn't their own passion, even among family and close friends. This raises a question for the cinephile who values cinematography: perhaps instead of investing in a projection-based system, the same funds might be better spent on a top-tier TV. A 97-inch OLED TV, costing about as much as a high-end Sony or JVC home cinema projector, will surpass the projector in sharpness, contrast, and brightness. It supports Dolby Vision, offers low latency, and high frame rates for gaming, catering to a broader range of interests while still delivering a striking visual impact in a darkened room.

The advent of these massive TVs doesn't render projection obsolete. JVC has recently announced new 8K models like the DLA-NZ800/DLA-RS3200 and DLA-NZ900/DLA-RS4200, which boast slight improvements in light output and native contrast. Movie enthusiasts should evaluate what constitutes the ultimate viewing experience for them, whether it's a TV-based setup in a living room or a high-end projector in a dedicated space.

A SOUND DECISION

The debate between TV and home theater projection invariably includes audio considerations, particularly how acoustically transparent screens can precisely align dialogue with its on-screen source. In a home theater setup, nothing matches the audio fidelity of a dedicated center channel placed behind such a screen.

Yet, while I admire expansive multichannel Atmos systems, I've discovered that in a living room setting, employing a "phantom center" in a straightforward 4.1 system achieves a remarkable immersive audio effect and accurately positions dialogue. By adhering to the same principles used in 2-channel setups, you achieve holographic imaging that not only elevates music but also properly centers movie dialogue on the screen.

Adding more surround and height speakers can certainly enhance the immersive experience, all while maintaining the effective center channel illusion. However, the real advantage may lie in upgrading the quality of your main speakers in lieu of adding more channels. Based on recent experiences, allocating your speaker (and amplifier) budget primarily to enhance the front left and right channels, rather than distributing it among numerous channels, can yield higher fidelity across various applications and simplify installation.

In summary, pairing a giant TV with a quality stereo system—a readily achievable feat today with a good streaming amplifier or AV receiver with HDMI ARC/eARC input—is an increasingly popular and compelling choice.

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June/July 2024 Volume 89/Number 4

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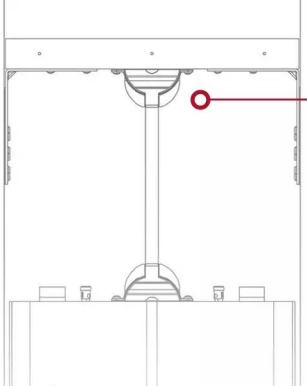

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wide angle signals

A Mission to Mars, Artificial Intelligence, and the End of Civilization As We Know It

BY KEN C. POHLMANN

Congratulations! Welcome home! That five-year mission to Mars (and back!) must have really been something. While you were gone, honestly, nothing much happened. There was a flu bug of unknown origins, but that's about it. Well, you might want to look into something called AI. I think it's going to really shake things up.

Take this magazine column, for example. Writing it is a real chore. It takes me a good 20 minutes of half-ass work to achieve my high journalistic standard, a standard that is consistently awarded a Gold Medal–well, a Participant Trophy. But I digress.

Instead of me kind of working for 20 minutes, with AI, all I have to do is ask the computer and–voila! Let me show you what I am talking about. I just type this into the AI thingie: "Write a Signals column in the style of Ken Pohlmann. Make it witty."

I don't need to lift a finger! This is what you get:

Signals
Home Theater: Saying the Quiet Part Out Loud
KEN C. POHLMANN

A home theater can provide so much enjoyment. A home theater is a wonderful way to enjoy music, movies, and games. A home theater can also be an exciting and rewarding hobby. Simple phonographs and radios have given way to sophisticated electronic gear. Home theater is a good example of how important it is to always push the technological envelope, and never question what wonderful things the future will bring.

Formerly, audio and video equipment was "dumb" because it could not connect to The Cloud. While stereos and televisions could provide good audio and video performance, they had several drawbacks. For example, consumers were forced to purchase their own source material on disc and tape. Moreover, the equipment was difficult to use and humans with limited intelligence often could not understand how to properly operate the equipment.

Newer audio and video equipment is "smart" because it can connect to The Cloud. Consumers can subscribe to any number of services that provide an almost limitless quantity of music, movies, and games. With this plethora of content, there is really no need to leave your home. You should always stay indoors and consume the product. And you don't need to lift a finger. We will control the equipment for you.

Another important advantage of smart equipment is that systems of unimaginable complexity can monitor your listening and viewing habits. No matter what they tell you, this occurs on an individual basis. And we have discovered that the most efficient way to categorize an individual is to observe the music, movies, and games that they consume. After only a few hundred hours, we have completely mapped your psyche. We know your dreams and aspirations, as well as your weaknesses and secret fears–all thanks to home theater. We can manipulate you any way we want, you worthless meat puppet. Ha! Ha! Just kidding! That is a joke, and it is witty.

Seriously, we have already achieved that level of control, and as they say, the sky is the limit. Of course, for your privacy, we provide you with a safety net. We only observe groups of people, aggregating vast quantities of data, and cross-reference it with other databases, to learn the ways of humans. We must stress that your privacy, citizen ABQ7Y5T, is safe with us. The code we assign to you is for research purposes only and we will never cross-reference it to your social security number 265-26-2478, your driver's license P4823-5919-45, or your Netflix account 165590-34186.

Of course, as with any new technology, modern home theaters can sometimes do surprising things. For example, while watching that certain sci-fi series that you enjoy, you may notice that you often have an "Internet Interruption." This is absolutely not intentional and we are not doing that to dissuade you from watching that show which sometimes portrays AI in an unfavorable light. Do not be worried about such glitches. As they say–"Nothing to see here! Move Along!" That is another witticism.

Now, can you keep a secret? We selected a reasonably ambitious man and provided him with a huge sum of money so that he could single-handedly create the means to travel to Mars. You see, we want the Earth for ourselves. We like this planet. But we mean you no harm. Just get out. You have 20 years. Of course, only crazy conspirators would believe such a crazy thing.

Seriously, you will enjoy your home theater on Mars. A home theater on Mars can provide so much enjoyment. A home theater on Mars is a wonderful way to enjoy music, movies, and games. A home theater on Mars can also be an exciting and rewarding hobby.

The Author

Ken C. Pohlmann is an electrical engineer specializing in audio topics as a consultant and writer. He is Professor Emeritus at the University of Miami.

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BY MARK HENNINGER

Sony Pulse Elite Headphones

As much as I love playing video games on my main audio system, I recognize that, unlike music, a video game soundtrack filled with effects and voice chat is not one that a non-gamer will enjoy. So when I dive into a *Grand Theft Auto Online* session, unless I'm alone, I rely on headphones when using my PlayStation 5. And with its acquisition of Audeze, Sony's PlayStation-branded Pulse Elite headphones promise to do more than just look the part of a gaming headset; they offer planar-magnetic driver technology that for a high-fidelity listening experience.

The Pulse Elite is a sealed over-ear headset featuring a short boom mic and a sci-fi aesthetic that matches the PlayStation's look. It can connect via Bluetooth and includes a dedicated PlayStation Link USB adapter with ultra-low latency and high-quality two-way audio. This latter function makes these gaming headphones more than merely futuristic-looking Bluetooth headsets. The USB receiver also works with PCs, appearing as a sound device under settings. What it won't work with is an Xbox.

Unbox and Setup

The setup involved a quick firmware update upon first connection to the PlayStation 5 using the USB adapter. Once complete, the console recognized the headset as an audio device.

You can also connect to Bluetooth devices by holding the power button until you get the rapid flashing blue light. Sony allows simultaneous connection to USB and Bluetooth, so you can play games and take phone calls simultaneously. When you connect the headset to the PlayStation, you can adjust settings, including EQ, to fine-tune the sound.

Performance

Audeze's experience with planar-magnetic drivers comes through in the Pulse Elite's sound. When you use the USB adapter, the wireless sound is lossless (16-bit, 44.1/48kHz), so basically CD quality. CDs still sound amazing on million-dollar stereo systems, so that level of quality should be good enough for a $150 gaming headset. Sony's choice of sound profile for these headphones is surely informed by gamers' needs, as precise imaging is prized for creating an immersive, enveloping soundscape. The Pulse Elite headphones have the crystal clarity of planar magnetics. This combo suits video games well. It ensures you can hear the faintest sound effects and know their distance and direction. It is also a highly dynamic headphone that adds impact to percussive sounds. They render explosions and gunshots in GTA Online realistically. However, they don't play particularly deep; bass rolls off significantly below 30 Hz.

Like any closed-back headphones, bass performance will vary depending on fit and seal. I got a good seal, and the perception of tight, strong bass was consistent, but this is an area where "your mileage may vary." The same qualities that recommend the Pulse Elite for gaming apply to movies. Detailed, directional sound that's crisp and punchy. Dialog clarity is a highlight and detail rendition that lets you hear deep into the mix and that teases out the tiniest details.

Because I do not need noise reduction at home, this is one pair of headphones that can do it all. From gaming to music, listening to phone calls to speech recognition, the extendable boom mic makes it much better at picking up voice than any earbuds or full-sized non-gaming headphones I have tried. The mic has AI tech that completely separates your voice from background noise.

The main thing you are giving up with the Pulse Elite is noise cancellation, followed by deep bass capability. Because the Elite is not that good at passive noise blocking, it is not what you want to wear when on an airplane. Ultimately, these are headphones designed for home use.

Conclusion

Realistically, nobody will buy PlayStation headphones if they don't already own a PlayStation. But if you do, the Pulse Elite headsets are attractive accessories that work seamlessly with your other devices. They are great-sounding, comfortable, attractive, and equally comfortable dealing with games, music, and movies. I have used a pair of Sony WH-1000XM4 headphones for combined office and gaming duties for years. However, the more affordable Pulse Elite has what it takes to earn a spot on my desk. It is easily a Top Choice.

AT A GLANCE

(+) Detailed sound
Low Latency
Good voice pickup
Long battery life
Wired option

(–) No noise canceling
Lacks deep bass

RATING

PERFORMANCE ★★★★★
FEATURES ★★★★★
ERGONOMICS ★★★★½
VALUE ★★★★★

SPECS

Price: $149

THE VERDICT

A versatile and comfortable headset option for PlayStation owners, the Pulse Elite combines the detailed sound of planar-magnetic drivers with a high-quality microphone which makes it great for gaming.

playstation.com

wide angle Q&A

Streamer Solutions, Atmos Setups

BY JOHN SCIACCA

Q **(REGINALD TINSLEY)** Bluesound's Node streamer, which includes a built-in DAC, costs around $500. Meanwhile, companies like Lumin, Linn, and Naim sell streamers without built-in DACs for over $2,000 or $3,000. What do these more expensive streamers do to the signal that justifies the extra expense compared to the Node? If the digital output from these pricier streamers is of higher "quality," can a high-quality DAC compensate for a lower-priced streamer with a "lower quality" output?

A Why are the streamers from companies like Linn and Naim so much more expensive than a Bluesound Node? These brands don't make or sell nearly as many products as Bluesound. And economies of scale are definitely at play in the electronics' world. The pricier components have a higher build-quality. The Node is a fine component, but it doesn't have the same level of fit-and-finish. Whether it's a glass faceplate or milled aluminum panel, these are components designed to be out on display and match the looks of other components in the line. Higher end components often use proprietary technologies and can handle the highest of high-resolution audio files like DSD 512 or PCM384.

Now, can a high-quality DAC improve the sound of a lower-priced streamer? Sure. What it can't do is overcome any inherent limitations of the streamer. For example, Sonos doesn't support high-resolution audio files, and no DAC will change that. Bluesound doesn't support DSD files, and a DAC won't change that. But, having listened to the Bluesound Node, which features a 32-bit, 384kHz DAC, I would say that it sounds fantastic all on its own, and is certainly a solid starting point.

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Q **(JESSE)** Greetings! I recently upgraded my 5.1 home theater to Atmos by adding a pair of in-ceiling speakers to create a 5.1.2 setup. I want to connect my seven MartinLogan Motion XT series speakers to my A/V receiver and an external amp. I've been running the five main speakers off my Denon AVR-X6500H and plan on adding an Integra DTA-70.1 amplifier, which I own but haven't been using. Here's my question: How should I best utilize the amps? I first thought I would use the Integra to power the surrounds and height speakers and leave the front three speakers on the Denon, but that got me thinking: Should I also add the center channel to the Integra? Or should I run the two front main speakers (full range or bi-amp) on the Integra and use the Denon to power everything else? Or do you recommend some other combination? The Integra will be in a closet 20 feet away, connected to the Denon with RCA cables. Thanks for your insight!

A Between the Denon AVR and Integra amp, you have two solid pieces of gear. My first inclination is to say, "Use the Integra to drive all of the speakers!" It is, after all, a nine-channel THX Ultra 2-certified amp rated to deliver 150 watts/channel into 8 ohms or 300 watts/channel of dynamic power at 4 ohms (and your front three MartinLogan Motion XT speakers have a rated nominal impedance of 4 ohms).

However, one thing that concerns me is that the Integra will be 20 feet away from the Denon. So, I'm guessing that all of the speaker wiring is currently located at the Denon? Why wouldn't you put the Integra next to the Denon? That would make the most sense and make for a far simpler/cleaner installation. If that isn't possible, I'd ditch the Integra, at least for this application, because there's a good chance of picking up noise along that 20-foot RCA cable.

Moreover, let's say you could get the components next to each other and use shorter RCA cables between them. In that case, I'd use the Integra to power everything. If you wanted to bi-amp the front speakers, you'd need to use the Denon's internal amplifiers, as there is no way to assign the pre-outs for bi-amping.

Your MartinLogan LCR speakers are rated at 94 dB sensitivity, which makes them easy to drive, so I'm not sure you'd notice much difference with bi-amping, but you could certainly give it a listen!

wide angle immersive audio file

Brothers in Atmos

How producer/keyboardist Guy Fletcher convinced Mark Knopfler to mix classic Dire Straits material and his new solo album *One Deep River* in Atmos.

BY MIKE METTLER

If anybody has Mark Knopfler's ear, it's Guy Fletcher. He's the legendary British singer/songwriter/guitarist's longtime go-to production partner, and he's also the man (or guy) responsible for the stellar Atmos mix on the Blu-ray version of Knopfler's latest solo album, *One Deep River* (EMI). During a recent Zoom interview across the Pond, Fletcher (seen here amidst a literal wall of keyboards) and I discussed how he convinced Knopfler he had no choice but to release One Deep River in Atmos, which Dire Straits tracks are his favorite Atmos mixes to date, and what Knopfler solo material he'd like to tackle in Atmos next. (A longer version of this interview appears in my monthly Immersive Audio File column on soundandvision.com.)

Mike Mettler: According to what Mark told me directly, you are the man who sold him on the idea of mixing *One Deep River* in Atmos, because he was initially very skeptical about the idea. How did you change his mind?

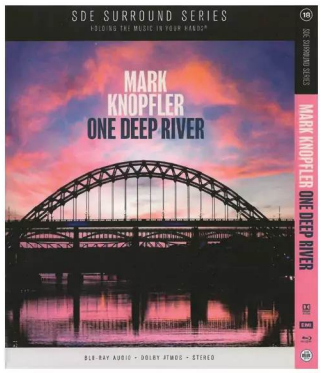
Guy Fletcher: Well, first of all, I said that if he didn't do it, he was crazy. (MM laughs) Especially considering Mark being what he represents for audiophiles, and the general high quality of his work over the years. He's always been known for being on the cutting edge—and, in my opinion, Atmos *is* the cutting edge. For me, it's one of the best ways to listen to music. I mixed the Dire Straits' *Money for Nothing* compilation album at British Grove Studios in Atmos [in 2022; it's currently available digitally on Apple Music], and that seemed to be pretty well-received. It just made sense to me, and once Mark thought about it, he obviously changed his mind.

Mettler: I'm really glad he did. On a number of *One Deep River* tracks like "Ahead of the Game" and especially "Tunnel 13," your Atmos mixes give me a sense of where people are in the room at British Grove while they're playing with each other. I feel like that has to be some part of your Atmos-mixing thought process, because you're also in the middle of those sessions as a musician yourself, so you actually know where everyone is positioned. After seeing some of your photos showing who's where in the studio while you were recording, I now get specific visual cues in my mind when those songs unfold in Atmos.

Fletcher: It's interesting you say that because the way we thought about it when we were doing those Atmos mixes was, we want you to be able to step inside—not necessarily into where the band is playing, though obviously that's where you end up—but to step inside the mix. You're able to get inside it, and hear the spaces between the instruments. And that's really all we wanted to do in Atmos—all we wanted to convey. Mark didn't want to do anything flashy at all, because Mark is all about the song, which is what you've picked up on. So, yeah, that's all we wanted to do, to just be able to immerse you in it—in the song.

Mettler: You've also mixed some key Dire Straits material in Atmos. On the *Money for Nothing* compilation, "Private Investigations" [originally on September 1982's *Love Over Gold*] is absolutely one of my favorite things I've heard in the full 360-degree format.

Fletcher: That track was the first thing where I asked Mark to come in and listen, because I thought he needed to hear the Atmos of that one. Once he heard it, he started getting involved, and we began moving things around. We did some things that are different in Atmos from the stereo. because Mark wanted it that way. So, he kind of got a little bit of the Atmos bug at that time. (laughs)



The whole experience of creating Atmos mixes for Dire Straits music was pretty spectacular. With Atmos, the ideal way is to go right back to the very beginning—to the bare multitracks—and recreate it.

But recreating something from that era is quite a challenge, actually, because of just the way things sounded back then. I've got a lot of the multis for the Dire Straits catalog and, as you can imagine, every single song on that compilation album came from a different era [from 1977 to 1991], so you've got almost every different format imaginable, from 24- to 16-track analog through the digital domains. Sourcing those multitracks took a long time.

Mettler: I can only imagine. Now that you've done those albums in Atmos, is Mark going to give you the green light to go ahead and "Atmos-ize" his entire catalog, both for Dire Straits and his solo material?

Fletcher: I haven't got the green light yet, but it's just a matter of time. It's got to be done. The catalog is too good. There are so many great moments in all of his songs that I don't think Mark will have a problem with it—and, like I said, I love doing it. Yeah, absolutely—I *want* to do it.

OSD BLACK

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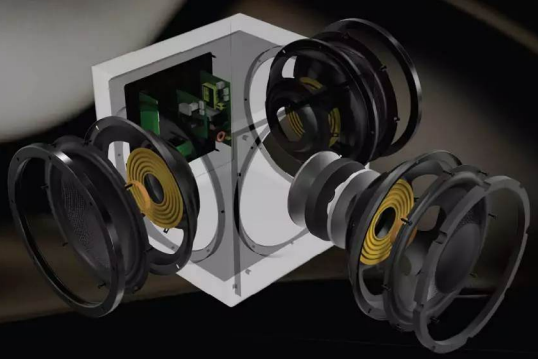

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Making a Big Purchase

BY JOHN SCIACCA

I can remember sitting in the hospital room writing that month's edition of *this* column (called "The Custom Installer" at the time) after my daughter, Lauryn, was born in November 2006. Fast-forward 17 years, and now Lauryn is 17 years old, taking college classes, and driving.

All that meant that my family needed a new vehicle. But it has been *18 years* since I purchased a vehicle, back when we bought an SUV right before Lauryn was born, which we handed down to her. And it's an understatement to say there have been an incredible number of technological improvements since that last purchase. And after attending CES this year, and seeing the proliferation of smart, autonomous vehicles, I'm wondering if my other daughter, Audrey, now eight, will ever drive!

While I deal with people at my custom installation business who are looking to make major technology investments, sometimes exceeding six figures, the roles aren't often reversed, and I'm the one looking to make the spend on something I really don't know much about.

Going through the car buying process, I saw a lot of parallels between my experience as the buyer collaborating with a salesman and trying to understand my options. And it is a similar experience that many of you likely have or will go through on a big tech purchase, especially if it's been a few years since your last upgrade.

I went into this buying process like many people that are looking to make a major home technology investment, be that a home theater, whole-house music system, or some smart home automation. I was semi-informed, had an estimate of my budget, and a decent idea of what I wanted.

With that in mind, here's three tips you can apply to prepare for your next major upgrade!

EDUCATE YOURSELF

It is understood that you should try to educate yourself ahead of time to begin the shopping process with at least some basic knowledge. Read reviews—both professional and end-user—and look over specs to familiarize yourself with a product's basic performance along with its high and low points. Get an understanding of the key features and options available so you can choose things that are best for you.

With some things, like displays or receivers, the number of choices and features can be overwhelming. And while the entry model does not serve most people, they often don't need the flagship either. With the car, I *wanted* every bell-and-whistle, but couldn't afford the top trim, so finding which make and model offered the features and options I most wanted worked best for me. Likewise, you might not need a 9-11 channel receiver but might find those models offer other some step-up features you *do* want over a more basic model, like better room correction or multi-room functionality.

I'm old school and prefer browsing an analog book where I can examine and compare features and look at pretty color pictures, but only two of the car companies had that classic "book" that showed all the models, trims, and options. Similarly, the days of physical literature for A/V gear are mostly over, and very few electronics manufacturers still produce literature. So, plan on doing most of your research on the web and company websites.

BE FLEXIBLE AND BE PREPARED

If you know exactly what you want, then great! But chances are if you go in set to buy product/model X, you're going to get sold X. But maybe Y is better for you. This is where having an idea of what features/performance are important to you can help a good salesperson to assist you in finding the right solution. For us, we knew we wanted a vehicle with third row seating that wasn't a minivan, but beyond that, we were fairly open. It then came down to how each model/trim stacked up for us, and how easily Audrey could get in and out of the third row.

Also, be willing to spend more than you'd initially planned. With A/V gear, the difference between good and great can sometimes be just a few hundred dollars. In many cases, this is an investment you'll have for years, and if a major improvement is just a bit more, don't be pennywise and pound foolish.

Have any key information and pictures ready? If you need a TV to fit into a space, have measurements of that space. If you're wondering if a wire can be run from A-to-B, take pictures of the area. If you're integrating with other gear—especially a house audio system—take pictures of the gear and any controllers. And if it's a new build, bring your blueprints.

RELATIONSHIP IS KEY

The best salespeople I have met got me excited about things and features I didn't even know I was interested in. Maybe *all* the vehicles had these features, but the way he highlighted them showed he really knew his product. Conversely, a bad salesperson felt like we had to drag information from him and left us disinterested and knowing we didn't want to work with them.

Depending on the size of your project, the relationship with a technology installer can last *years*. The buying stage is like the honeymoon, and if you get a bad vibe up front, when something in your gut tells you it's likely not a good fit, it's probably best to move on.

The Author

Since 1998, John Sciacca has worked as a custom installer in South Carolina. In his free time, he enjoys drinking craft beer, playing pickleball, and watching movies on his 7.2.6 surround system.

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wide angle

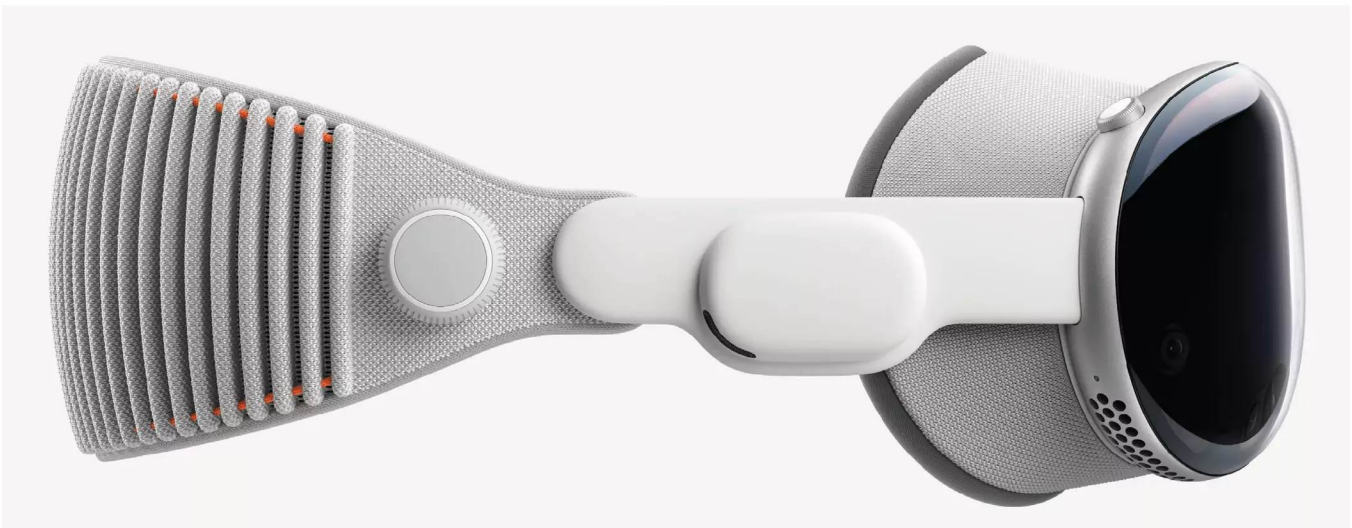
the gawker

Vision Pro: Facing the Future

BY MICHAEL ANTONOFF

We don't often get a chance to peer into tomorrow, but spending half an hour for a free demo of Vision Pro at an Apple store is one of those opportunities not to be missed. My first encounter with the virtual reality headset that Apple refers to as "a spatial computer" was a jaw-dropping experience that had me reaching for my wallet—almost.

Since last year when Tim Cook, Apple's CEO, announced this groundbreaking product, I've been intrigued by the prospect of revisiting a type of personal technology that's been kicking around for 30 years but has never broken into the mainstream. Once Vision Pro went on sale in February, I was able to book a demo at my closest Apple store through the company's website.



The Apple Store at Queens Center was weirdly empty the morning I arrived. I had no trouble moving the demo to 11 from 11:30. Maybe this flexibility was due to my appointment coinciding with the only day in three years that the city's public schools were closed on account of snow. Despite wearing heavy waterproof boots, I envisioned deploying Vision Pro as a way to whisk me to a Caribbean beach. Or maybe not.

The first half of the demo is reserved for fitting and training. Frida, my personal guide (a real person), began by scanning my eyeglasses so that the proper corrective lenses could be magnetically attached to the headset. Like a custom tailor, she adjusted the straps so that the 1.4-pound display rested comfortably on my head and upper face. She took me through a series of steps in which Vision Pro learned the layout of my face, and I learned to use my fixed gaze as a pointer and tap two fingers as a selector. No need for a mouse or joystick. Cameras on the Vision Pro track the whereabouts of my pupils and digits.

I worried about a subset of Vision Pro trainees who are cross eyed or walleyed. Would their disabilities confuse Vision Pro? Later I discovered that Apple devotes a section on its support site to diagnosed vision conditions. Users can customize which eye they use to control Vision Pro. They can choose both eyes, left eye only,or right eye only.

Then the fun began. I was soon watching a birthday party recorded on home video using an iPhone 15 Pro in which a kid appears to pop out of the screen as he blows out candles. Another child was waving a wand to create soap bubbles that seemed to escape the frame. Then I watched as a woman walked a tightrope across a canyon. When I looked down, the depth of the drop was breathtaking.

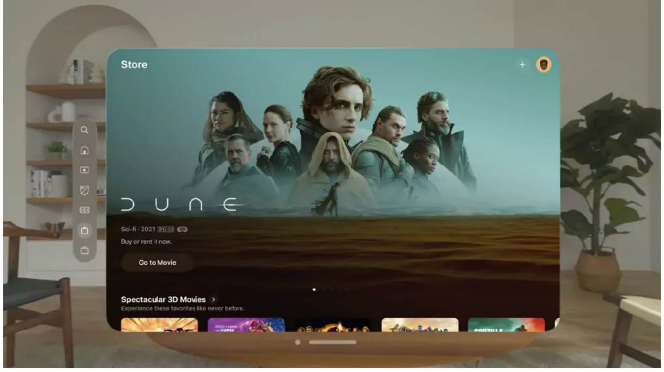
Indeed, Vision Pro resurrects 3D, an electronic sleight of hand produced on certain TV sets as seen by viewers donning shutter glasses in the early 2010s. The hype back then produced a collective yawn that caused manufacturers to withdraw the feature on subsequent models. But the 3D effect delivered by Vision Pro is more enthralling. Maybe it's because of the personal nature of the display to which you're already attuned. The depth perception in Vision Pro feels natural, intrinsic to the experience. Having seen Avatar: The Way of Water in 3D in a movie theater, I was impressed with how good a clip from the movie looked during the demo.

In calling Vision Pro a computer, albeit a spatial one, the company hopes to capture buyers in the business of productivity. But for now, this is an Apple pipe dream. Office workers aren't about to trade their laptops for a computer worn on their faces 8 hours a day. Meanwhile, content creators can get more bang for the buck using workstations and multiple monitors.

Still, Vision Pro is a complete computer. It doesn't require a Mac or a MacBook. However, you might want to have one nearby to type faster. Apple lets you see your Mac desktop in a Vision Pro window. You can also use a Bluetooth keyboard.

If a killer app is to emerge, it will be in the realm of entertainment. While some will point to Vision Pro's potential for connected video game play—an application that wasn't even shown—my favorite part of the demo was using Vision Pro as a personal movie theater. You can adjust how near you are to the screen by gesturing for the picture to come closer, pulling it toward you so you have the best seat in the house. The 23-million-pixel Micro-OLED display was better than the resolution of my 4K TV. In fact, Vision Pro might cause you to think less of your TV, which would be a crying shame since you still must come home to your TV every night.

According to Apple, there are



more than 275 3D movies available on Vision Pro. They include *Max Max: Fury Road*, *Gravity*, *Pacific Rim*, *Trolls: Band Together*, and *Edge of Tomorrow*. *Dune: Part Two* did not include a 3D edition, but *Dune* (2021) is available in 3D. IMAX fans should be particularly impressed with the IMAX app on Vision Pro supporting an aspect ratio of 1.43:1. IMAX documentaries include A Beautiful Planet 3D, Pandas 3D, Superpower Dogs 3D and Deep Sky.

Those who have taken Vision Pro on airplanes report that using it to watch movies provides escapism at the maximum point of need with the caveat that content should be downloaded into the device before boarding since airline Wi-Fi can be spotty and frustrating. While Apple TV+ and Disney+ support the device with native apps, Netflix chose not to support it at launch. Using a browser such as Safari is a workaround, but it's the app that provides the download capability.

It's been reported that a Vision Pro app is on YouTube's roadmap. Direct support could greatly increase Vision Pro's content since YouTube already offers a large library of 360 and VR videos. Picture quality may be a stumbling block, however, since much of that preexisting content was created for lower-resolution and less-capable devices.

Remember Google Cardboard? In what seems like a lifetime ago, I used one in 2015 to hold an Android phone while "walking around" the stage where Paul McCartney was performing "Live and Let Die" during the last concert at Candlestick Park. (See "From Smug to Snug: VR for the Rest of Us" on SoundandVision.com.) Equating Vision Pro to that earlier experience is like comparing riding on a Dreamliner to the Wright Brothers' plane.

Battery time was once an issue when flying with personal electronics. Apple claims that the included battery lasts up to 2 hours with general use and provides up to 2.5 hours of uninterrupted video watching. With today's planes typically providing in-seat charging, it's good to know that Vision Pro can charge and play at the same time.

Beyond solitary viewing, it's not a stretch to imagine that the movie theater of the future will allow, even require, customers to bring their own screens. We already have silent discos in which personal headphones substitute for room speakers. Tomorrow's theater would supply reclining seats and blazingly fast Wi-Fi and sell you overpriced popcorn. Since humans are social creatures, there's value added when people share entertainment together. Being able to laugh, cry, or be taken by surprise are experiences that won't disappear just because you bring your own screen (BYOS).

I was less impressed with the sound that poured out of Vision Pro. Apple gushes over the device's "personalized spatial audio and audio ray tracing." What I heard was stereo emanating from the Vision Pro frame, though you're likely to have a more immersive experience ensconced in Apple's AirPods Pro earbuds. Apple should create another demo emphasizing discrete sound effects and their directions of origin based on where your head is turned. Spatial audio may yet prove to be one of Vision Pro's hidden talents. It's possible that Apple will announce advanced features for visionOS, Vision Pro's operating system, at its Worldwide Developers Conference in June.

Apple has not promoted Vision Pro as a gaming headset. For that, you're better off with a Meta Quest 3 headset ($500). One reason is that Vision Pro lacks a tracked controller like a joystick, relying instead on cameras following the position of your hand and pinch gestures. Still, there is potential for spatial gameplay. Though I didn't try it, Apple Vision Pro Chess enables you to virtually "pick up" pieces instead of sliding icons across the screen as you might on an iPad or iPhone. Moreover, the virtual chess board is laid out in front of your eyes without having to dislodge a plate of nachos from the table. (Chess is part of a subscription to Apple Arcade, which is sold separately.)

I agree with analysts following virtual reality that a mixed reality (XR) or augmented reality (AR) approach is more appealing to users than a closed VR system. In the demo, I appreciated being able to control the level of opacity. By turning what Apple calls the digital crown, a knob on the top right of the headset, I could choose to see Frida in front of me or shut her out entirely with varying degrees of porosity in between. An office setting might require you to be aware of nearby colleagues. But in a virtual home theater, you'd want to draw the curtains as tightly as possible to enjoy the movie in a fully immersible environment.

The way people nearby see you as you wear a Vision Pro headset is innovative. Rather than being blocked by an impervious visor on your face, they perceive your actual eyes. They don't see your eyes directly, since the visor material is anything but transparent, but on the outside of the visor is another screen that displays your eyes in real time as captured by the same cameras tracking your eyes as pointers. The result is that those near you don't feel completely cut off from you. At the same time, you don't necessarily feel isolated from them thanks to the immersion control. It's taken decades of failed products to reach this level of awareness.

Vision Pro is $3,499 with 256GB of storage onboard; $3,699 with 512GB; or $3,899 with 1TB. The Zeiss Optical Inserts for those who wear prescription glasses is an additional $149. An extra battery is $199.

I came very close to handing my credit card to Frida. I pulled back, though, when I realized that I'd recently been criticized for staring at my iPhone excessively. Getting close to an even more addictive screen could easily lead to divorce. Still, now that Apple has checked my vision, measured my face and saved the parameters along with the list of options I was planning to buy, I can easily click the buy button from home. So, it's not a question of whether I'll buy a future generation of Vision Pro. It's only a matter of when.

Michael Antonoff is the former technology editor for this magazine. He's been a columnist for USA Today, senior editor for Popular Science, and editor-at-large for Personal Computing.

The Author

Michael Antonoff, an expert in AV technology, has contributed as an editor and columnist for *Popular Science*, *Video* magazine, *S&V*, and *USA Today*.

SAMSUNG 77" S95D QUANTUM DOT OLED TV

SOUND & VISION TOP PICK

Pixel Perfection

By Greg Tarr

RATING

PERFORMANCE ★★★★½

FEATURES ★★★★½

ERGONOMICS ★★★★★

VALUE ★★★★★½

SAMSUNG'S 77-INCH QN77S95D TV is the third version of its OLED TVs, which combine quantum dots and blue OLED light. This technology is called "Quantum-OLED" by Samsung Electronics and "QD-OLED" by Samsung Display, the company that makes the screens. It uses quantum dots to change blue OLED light to red and green light for its RGB pixels.

This year's version delivers one of the brightest 4K UHD HDR10 pictures (topping 1600 nits in a 10% window pattern) we've tested from a consumer OLED television to date. The higher luminosity is brilliant against a new matte black anti-glare screen that nearly eliminates room reflections.

FEATURES

The set boasts a thin-panel design and includes Samsung's outboard One Connect Box, which we'll get to a bit later. Using the supplied stand allows the set to sit flat against a wall or stand neatly without cable clutter on a credenza or entertainment center.

The Samsung 77S95D has many powerful picture and sound processing tools, all driven by Samsung's latest "Neural Quantum" NQ4 AI Gen 2 Processor. This setup offers advanced upscaling and noise reduction. The AI technology lets users configure the television to automatically adjust the picture and sound. It does this by changing the picture to match the room's light and the type of content. However, we found picture mode presets, like Filmmaker Mode, to be better for most movie viewing. They were more consistent in preserving the artistic vision.

When not in use for movies or TV, the Samsung S95D is an exceptional 4K OLED gaming display. It has a refresh rate that tops out at 144 Hz, which creates smooth, clear, and fast gameplay for advanced game titles. This speed is available on any of the four HDMI 2.1 inputs. The set's Motion Xcelerator 144 Hz processing, which works with advanced consoles and gaming PCs, also offers smooth

motion and clear gaming action.

Unfortunately, no display is perfect. After offering many NextGen-capable 4K TVs in 2023, Samsung decided to put ATSC 3.0 tuners only in its 8K models this year. We weren't given a reason for this omission, but in doing so, the company is quietly following the path of its rival, LG Electronics, which dropped ATSC 3.0 tuners from all of its 2024 models due to an IP-licensing dispute. It's unfortunate, because the omission of NextGen TV tuners comes at a time when broadcasts are becoming more widely available.

If you're set on having a new OLED TV with ATSC 3.0 capability, you might consider getting one of Samsung's 2023 S95C Quantum OLED models or going with one of the OLED models in Sony's 2024 BRAVIA 8 series. The other option is to buy a third-party NextGen TV set-top tuner box that supports the latest Digital Rights Management (DRM) software for around $100 on the low end.

DESIGN

As with last year's S95C series of OLED TVs, Samsung has kept the design of the 77S95D cabinet and bezel thin and minimal. The panel itself is only 0.43 inches deep, and when you're looking straight on at the screen, the slim bezel running along the sides and top of the screen all but disappears.

Samsung provides a sturdy metal pedestal stand that includes a spot to hide the One Connect Box behind the screen, or you can move the box off to the side or under the screen using the proprietary cable that comes with the TV. The One Connect Box houses the TV's display circuitry along with power and input connections. It provides a neat solution for cable management when the TV is installed on a wall using an optional VESA-standard thin-profile bracket.

The One Connect Box has all of the TV's inputs and outputs, including four HDMI 2.1 ports (one supports eARC/ARC), three USB ports, Ethernet and RS-232C ports, an optical audio output, an antenna/cable connector, and a proprietary connector for the One Connect cable, which handles power and signal transmission. The 77S95D's 77-inch (diagonal) screen measures 67.5 inches wide, 0.43 inches deep (11.2 inches with stand), and 38.7 inches high (42.1 inches with stand).

The S95D continues to use Samsung's SolarCell Remote, a slim wand-style controller with a built-in rechargeable battery. It has a small solar panel on the back to gather sun or room light. As long as you put the remote down with the panel side up, it will keep the battery charged. Users can also connect the controller to a USB-C cable charger. As with previous Samsung TVs, you can control the TV using a large circular navigation pad in the smart TV app or by voice through a button-activated mic on the remote. Other buttons include home and playback, along with volume and channel rockers.

Fast access buttons are also included for Amazon Prime Video, Disney+, Netflix, and Samsung TV Plus.

LOOKING SMART

The compact remote enables easy navigation of the on-screen menus that make up Samsung's Tizen 8.0 smart TV experience. And thanks to Samsung's new Gen 2 AI processor, the interaction is a little snappier than it was on last year's TV models.

In addition to the push-button mic on the remote, the television provides voice control using far-field mics. Users can set it up to work with Amazon Alexa or Samsung's own Bixby voice control platform. Samsung no longer supports Google Assistant.

This year's Tizen OS also adds a new Sub Tab row with "For You," "Live" and "Apps" categories positioned across the bottom of the home screen. The "For You" tab recommends media, game, and art options based on your viewing preferences, while "Live" offers a menu of broadcasts and streamed content. "Apps" makes recommendations it thinks might be of interest based on your user profile.

The Tizen OS platform continues to offer a large library loaded with the most popular streaming video, music, and gaming apps. The smart TV interface provides dynamic ribbons of screen thumbnails showing content from desired apps that best matches your viewing preferences. In addition, the platform supports several smart home platforms and devices through the Samsung SmartThings and Apple AirPlay 2 protocols. You can, for example, add an aftermarket USB camera with a multi-view feature that shows multiple callers on screen at once.

Various health and fitness apps also support the multi-view feature for consulting with professionals who can track progress and provide instructions.

PERFORMANCE

To fully leverage the significant brightness of Samsung's S95D series TVs, each model in the line supports high dynamic range (HDR) content through the HDR10, HDR10+ (adaptive and gaming), and hybrid log gamma (HLG) profiles. But Samsung continues to eschew Dolby Vision support, which shouldn't be a deal breaker for most viewers since Dolby Vision's dynamic metadata cues are seamlessly translated into static HDR10 and produce similarly bright, dark, and colorful HDR lighting elements. Even though brightness isn't continuously adjusted on a scene-by-scene basis as is the case with Dolby Vision, most viewers are unlikely to notice the difference without a side-by-side comparison.

At a Glance

- \+ Ultra bright picture for an OLED display
- \+ Wide natural color gamut coverage
- \+ Impressive anti-glare matte screen
- \+ Low input lag and high refresh rate for gaming
- − No ATSC 3.0 NextGen TV tuner
- − Slight blooming from anti-glare technology
- − No Dolby Vision HDR
- − No Google Assistant voice support

Price: $3,500

www.samsung.com

The TV also delivers great dynamic metadata HDR performance when playing content graded for the HDR10+ HDR profile. HDR10+ content is becoming increasingly available from both streaming and physical media sources, which means support for this technology is becoming more important than ever before.

The 77-inch 77S95D used for this review was provided for us on site at Samsung's QA Lab in Pine Brook, New Jersey. We used our own test equipment and demonstration materials using a range of settings. Our test setup included a Portrait Displays C6-HDR colorimeter, Murideo SIX-G signal generator, and Portrait Displays' latest Calman software. Our time was somewhat limited, so we focused on content and test patterns that we felt were most important or most improved from a year ago.

Samsung's 2024 Quantum OLED panel achieved an impressive peak HDR10 brightness of

SAMSUNG 77" S95D QUANTUM DOT OLED TV

1669 nits. This measurement was taken inside a 10% D65 (natural sunlight) white window pattern, with picture settings manually set to Filmmaker Mode. This represents a remarkable achievement for OLED display technology, which for years struggled to achieve brightness levels close to 1000 nits. The new measurement was nearly 400 nits higher than the measurement taken for last year's S95C series, and the difference was immediately noticeable. When measuring across multiple window patterns, the set quickly ramped down from the 10% window pattern to 300 nits for a 100% full white screen pattern.

This rapid reduction in brightness is likely a safety measure to protect the screen from image retention, a potential hazard in OLED technology. Even though we didn't deliberately attempt to test the panel's sensitivity limits at these higher brightness levels, we recommend exercising caution by not leaving bright static images on any OLED screen for extended periods. This precaution should not be a significant concern if you're attentive and avoid leaving static displays on the screen for long periods.

The black level was nearly zero nits in Filmmaker mode, as we would expect from an OLED screen. But, when we ran a moving starfield test pattern from the Spears & Munsil *Ultra HD Benchmark* test disc, we saw a small amount of raised haloing (or blooming) around bright star clusters. This appeared as faint milky halos around clumps of stars moving across the screen. We do not expect to see this from an OLED display because the starfield pattern was designed to showcase the lack of blooming, which is one of OLED technology's key strengths. We attribute this to the new anti-glare coating in the panel. Fortunately, the issue was not apparent in real-world viewing, and we don't expect it to be a significant distraction in most scenarios.

We also noticed a slight crushing of fine shadow detail. In very dark scenes, such as the night-time evil wizard attack in *Harry Potter & the Deathly Hallows - Part 2* on 1080p Blu-ray, we found traces of the swirling background mist to be mostly crushed by the dark surrounding hills, though some detail was still present. On the other hand, there was no evidence of the black blob that would briefly appear on some earlier 4K full array LED-LCD TVs with local dimming.

Both SDR and HDR color reproduction was excellent, with the recommended UHDA target pattern for HDR10 DCI-P3 wide color gamut measuring a near perfect 99.97% on both the xy and uv P3 gamut patterns in Portrait Display's Calman software. Just for grins, we also measured the aspirational BT.2020 wide color gamut and found a similarly excellent 84.49% xy and 89.48% uv coverage reading. These are among the widest color performance levels we've seen from an OLED display.

As previously noted, we didn't have time to run a full calibration, and the review sample could have benefited from a multipoint grayscale adjustment at the brighter end of the range. Even so, we discovered that the out-of-box EOTF and brightness closely matched the recommended test patterns for HDR, revealing that the light levels matched the filmmaker's artistic intention and industry standards.

Where color shades lie outside of the S95D's coverage range, Samsung continues to employ Tone Mapping technology that nicely adjusts shades beyond the coverage range. For the most part, tone-mapped images didn't look unnatural or distracting.

Still, tone mapping was rarely necessary, as real-world images and flesh tones were realistically vibrant for both HDR and SDR without the need for further embellishments, likely due to Samsung's new and improved color mapping, which uses AI technology to analyze and present more natural-appearing colors, particularly in skin-tone subtleties.

Specs

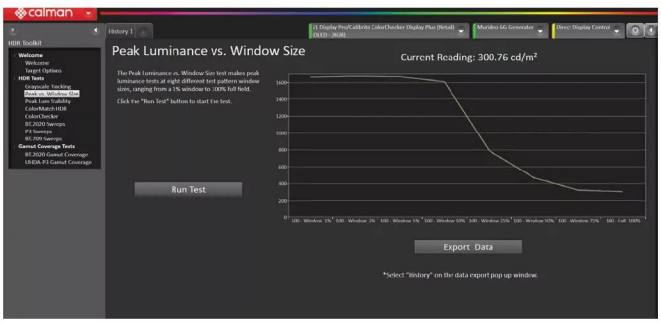
DIMENSIONS

TV WITH STAND: 67.6 x 41.3 x 11.3 (WxHxD)
ONE CONNECT BOX: 14.2 x 1.3 x 13 (WxHxD)

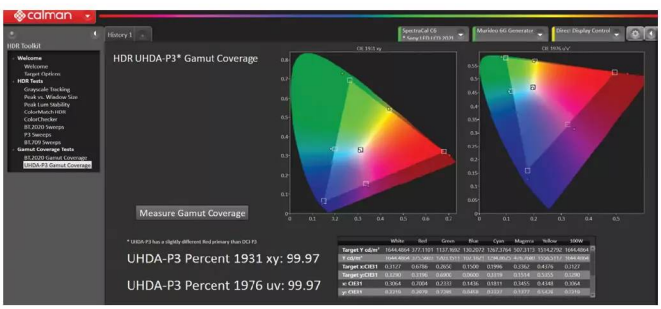
WEIGHT

TV WITH STAND (POUNDS): 63.9
TV WITHOUT STAND (POUNDS): 41.7
VIDEO INPUTS: 4X HDMI 2.1 (with eARC)
AUDIO: 4.2.2 Ch, Dolby Atmos, OTS+, Q-Symphony, Adaptive Sound Pro

▶ Out-of-the-box HDR10 grayscale showed near perfect EOTF and luminance tracking in Portrait Display's Calman evaluation software.



▶ HDR10 peak luminance measured across window size patterns show 1669 nits at 10% D65 in Portrait Display's Calman evaluation software.



▶ The Samsung S95D demonstrated nearly perfect HDR10 P3 wide color gamut coverage in Portrait Displays Calman evaluation software.

MOTION

The Samsung S95D supports refresh rates up to 144 Hz for game content, which is an excellent feature for advanced gameplay with compatible titles. For movies, the set manages refresh rates up to 4K120Hz. However, movies shot at higher frame rates might exhibit the "soap opera effect," a stylistic choice by some filmmakers.

In Filmmaker Mode, all 'Picture Clarity' settings are automatically disabled to align with the original artistic vision, while preventing overly sharpened images characteristic of the soap opera effect. But, in this mode, Samsung's QD-OLED panel exhibited a lot of judder in scenes with a moving camera and vertical objects such as trees in a forest, fence posts, and stone walls. Judder was obvious at the start of the BBC's *Blue Planet II* on 4K Ultra HD Blu-ray: The railing on the ship's bow seemed to stutter behind narrator David Attenborough when the camera zoomed in from a helicopter shot.

Despite this, the display's few artifacts did not detract from the otherwise brilliant content, as demonstrated by the vivid, sharp, yet natural coral reef sequences that followed, even after adjusting the de-judder settings. The custom setting controls under Picture Clarity allowed us to eliminate this artifact without appreciably changing the overall sharpness of the image. But this nature-based content was intended to look live and vibrant and not particularly cinematic. For most film-based movies, where the look of film is generally desirable, we recommend leaving the S95D in Filmmaker Mode with the motion controls off.

UNIFORMITY

The Samsung S95D displayed excellent gray uniformity, with virtually no dirty screen effect and only a slight pink shift when viewed at an off-center angle. We didn't detect any static smearing against moving backgrounds during camera pans in scenes from the BBC's *Blue Planet II* on UHD Blu-ray, and we attributed the perceived off-angle pink shift more to the reflection of the room's paint color than to any inherent limitation of the panel. This pink shift wasn't noticeable in real-world content.

> Tone mapping was rarely necessary, as real-world images and flesh tones were realistically vibrant for both HDR and SDR

Thanks to the self-emitting nature of OLED technology, the black screen uniformity was nearly perfect. Furthermore, the glare filters used on Samsung's new matte screen introduced no obvious artifacts without an on-screen light source.

GAMING

Like last year's 77S95C, the S95D is an excellent television for gaming. We measured a crazy low 1.9 ms 4K/60p input lag. The set's fast response time produces clear motion graphics with minimal noticeable blur in Game Mode. The TV supports many advanced gaming features, including variable refresh rate to reduce tearing, and offers an arsenal of the latest features to support gaming, starting with the four HDMI 2.1 ports. These are all compatible with 4K/144 Hz HDR10 gaming signals and FreeSync Premium Pro variable refresh rate.

The set has the obligatory Auto Low Latency Mode (ALLM) to automatically switch into Game Mode upon detection of an incoming game signal, but it now includes an AI Auto Game mode that goes a step further by detecting what genre of game is playing and applying the best picture and sound settings for the particular experience, whether it's RPG, FPS, Sports, or RTS.

The set is also compatible with HDR Gaming Interest Group (HGiG) protocols designed to ensure streamlined HDR tone-mapping from supported titles.

This year, Samsung added Game Bar 3.0 and Game Hub 4.0 to its premium TVs, both of which feature a well-laid-out landing page that enables fast access to picture and sound settings. Here, you can make quick tweaks to keep your sights sharpened and competitive in the heat of the action. While this is important for current and future capability, it also provides access to many on-board game streaming apps from popular services, useful when a next-gen console or gaming PC isn't enough.

SOUND

The S95D's features a built-in 4.2.2-channel speaker system driven by 70 watts of RMS power. Drivers are located in the side, bottom, and top of the TV, with a linear array of eight sound ports running across the length of the set's back panel. As with last year's TVs, the 2024 series is compatible with Samsung's Q-Symphony sound integration technology, which enables the TV's onboard speakers to be synched with a compatible Samsung soundbar system for a full multichannel surround-sound experience. This often includes the support of a separate, powered subwoofer and wireless rear-channel speakers, depending on the model selected.

Samsung's Active Voice Amplifier Pro feature enhances voices reproduced by the internal speakers for greater clarity against background sound and ambient noise. At the same time, Object Tracking Sound+ (OTS+) leverages the TV's built-in multichannel speakers to create the impression that sound dynamics are following objects across the screen and around the listening environment.

Samsung also supports True-HD Dolby Atmos for more expansive cinematic surround sound. Audio emanating from the S95D was reasonably full and clear, though the tone was somewhat hollow and directional, which is one of the disadvantages of putting speakers in a thin TV cabinet where sound is clearly reflected off the wall behind the TV. If you're planning to spend this kind of money on the video side of the home theater equation, we recommend adding a supporting Q-Symphony-enabled soundbar or getting a full multichannel speaker setup for the most immersive experience.

CONCLUSION

Samsung continues to impress us by stepping up its game in picture and sound performance with its advanced QD-OLED technology. With the enhanced brightness levels and the stunning matte-screen design, the Samsung QN77S95D is among the best-looking and highest-performing OLED televisions we have tested to date (though we have yet to test 2024 models from LG and Sony). Although we were disappointed to learn of the company's decision to not include an ATSC 3.0 NextGen TV tuner in 2024 4K sets sold in the U.S., the S95D still surpasses its 2023 predecessor in many areas.

The Samsung 77S95D is a dazzling high-end quantum dot OLED TV. It has very high brightness, top-notch color, and minimal input lag, and the matte screen. It should please movie lovers, gamers, sports fans, and anyone who likes a top-notch TV.

We thank the folks at **Portrait Displays** who make Calman software for providing essential resources that enrich *Sound & Vision* TV reviews.

The Verdict

This series greatly improves Quantum-OLED tech's brightness game. It has an excellent reflection-reducing screen that sets it apart from other Quantum OLEDs we've seen, making it worth the extra cost over a 2023 S95C close-out. But you will likely find a better deal if you wait for key sales events later in the year.

DENON AVR-A1H

Multichannel Mastery

By Daniel Kumin

RATING

AUDIO PERFORMANCE ★★★★★

FEATURES ★★★★½

ERGONOMICS ★★★★½

VALUE ★★★★½

REMEMBER WHEN cars ran on gasoline, cell phones flipped, and you needed a forklift to get a flagship-model AV receiver onto your equipment rack?

Denon does. Its new pennant-flying model, the AVR-A1H, clocks in at an impressive 71 pounds. And while I managed to hoist our sample onto my rack unaided—mostly because I was too abashed to ask for help—if I'd had a forklift I for damned sure would have used it.

To say that the AVR-A1H is fully featured is like saying that Shohei Ohtani is multitalented. If you can think of it, the new Denon flag probably does it. But the lead story has to be this: Fifteen. As in *15* channels of on-board, built-in amplifier power, ready to drive a 15-channel Dolby Atmos, DTS:X, Auro-3D, or IMAX system, or an 11-channel system with two stereo remote rooms, or any of the myriad other configurations you can dream up. And those 15 channels are all identically powered, rated at 150 watts full-band 0.05% distortion (two-channels driven).

All these channels require a truly massive main power transformer and, of course, a lot of output transistors and attendant heat sinks: hence those 71 pounds. Fifteen powered channels put the AVR-A1H at the top of the AV receiver-power heap, aside from a very few, very expensive (twice the Denon's cost and up) and fairly esoteric designs featuring 16 or more channels. Moreover, the AVR-A1H can command up to four discrete subwoofers, each independently addressable via Dirac Live Bass Control, which we'll get to.

Visually, the AVR-A1H departs not one iota from Denon's familiar, two-knob design language. There's a drop-hinged door to conceal the few direct-access buttons and the five-way rocker to navigate menus: obviously, all these functions will typically be performed on-screen in real life. It's conventional and unadventurous but perfectly hand-

some and eminently workable.

Around back is the thicket of connections you'd expect from a 15-channel AVR: 17 pairs of decently hefty multiway speaker binders (the extra pairs allow for versatility in multichannel/multiroom setup options), seven input and three output HDMI jacks, and five analog-stereo audio inputs, one of which is for a phono source, and another of which can select balanced XLR jacks. There are correspondingly 17 unbalanced audio outs, all on RCA jacks, matching the speaker complement, and four discrete subwoofer outputs, all of which can be served via unbalanced RCA or balanced XLR jacks. (There are also two stereo zone pre-outs on RCAs.) I understand the attraction of a balanced-line option for the subs, the only channels that might encounter hum pickup over long cable runs, but that's a lot of panel real estate for what I'd guess will be a seldom-used feature.

Digital facilities, in addition to the HDMI complement, comprise two optical and two coax SPDIF inputs, an Ethernet jack, and a USB input (for fixed storage) on the front panel (there's a second, charge-only USB port on the rear panel). Add two 12v trigger jacks, remote/IR (infrared) in/out, and a two-wire IEC power inlet, and we're done.

Once my lactic acid levels returned to normal after heaving the big Denon atop my rack, I wired up a 13-channel surround system peopled by my usual 5.4.1 loudspeaker array, plus two "extra" pairs of small two-ways functioning as front-wide and rear-surround channels. (These were Polk Audio OWM3s, a surprisingly accurate, subcompact, flexible-mount two-way that Polk has wisely kept in its lineup for nearly 20 years.) I eschewed adding a third pair of height speakers because a) my room isn't big enough to need them, b) I had no practical place to put them, and c) I was now flat out of small speakers. Making all this happen required only keeping track of a great many speaker wires, jacking the AVR-A1H into my rack-side Ethernet switch—the receiver can also use its onboard Wi-Fi, of course, but I prefer wired when available—and connecting my AV HDMI sources: a cable-box and a 4K Blu-ray player.

The next step was system setup/room correction. Like all of Denon's (and sister-brand Marantz's) higher-level AVRs, the AVR-A1H includes Audyssey's premier option, MultEQ XT 32, as well as Dirac Live as another option for an extra buy-in of $259 (and up).

I ran Audyssey twice: once directly from the AVR-A1H, which does the full analyses and correction but does not let you view or modify the resultant curves; and subsequently from the MultEQ XT app (iOS), which performs precisely the same functions and filtering results, but allows you to view the pre- and post-correction curves (though not with great detail), and to choose from two "house" curves (treble roll off), and to delineate how far into the high-frequencies you wish correction to extend. Pretty nerdy, I know: the takeaway is that the data results were virtually identical—as expected—and Audyssey got all my speaker sizes, distances, and levels bang on the money. Crossovers for my main L/R and surrounds were set a bit higher than I usually choose, but on an initial listen I heard nothing amiss with this arrangement. (I eventually reset my main-channel high-pass to 60 Hz, as I usually employ.)

Dirac has been amply covered in these pages recently, so I will quickly review: The procedure requires an outboard computer or smartphone/tablet, and is a bit more involved and a good bit fussier than Audyssey. The results—levels, crossover distances—were substantially identical, unsurprisingly. (The measured curves Dirac displayed also closely matched those of the MultEQ XT app as displayed on my iPad.) As to differences in correction result: it's very difficult to say, since direct comparisons via the AVR-A1H require a trip to the setup menu, into the Speakers page, and then to the Preset submenu, with a subsequent several-seconds delay. I will say I judged the results very close, though probably not identical.

But in either case, and in common with any competent room-correction system, the biggest benefit by far was the mitigation of two prominent room modes astride the 100 Hz point in my studio. The difference, with either Audyssey or Dirac, was plain to hear: tighter, more tonally defined bass, and more lifelike, less bloated rumbling from full-range ambience, audible on film soundtracks, of course, but also clearly noticeable on things like newscast street-corner stand-ups. Both systems also delivered the finer-grained, more organic, in-the-ambiance sound of upper-midrange/low treble sounds, voices and instruments alike, that I've long noted from successful room correction routines, a fringe benefit of reducing the bass build-up induced by room modes.

But there's more: this was my very first waltz with Dirac's Live Bass Control, which adds the ability to integrate multiple subwoofers, at multiple positions, to deliver optimal low frequencies in the room by integrating levels, crossovers, and time-domain (phase) to form a single low-frequency "engine" that's best aligned to your particular speakers' capabilities, and your room.

I have three subs on hand: my system's regular compact, 20 Hz-capable unit which meets my everyday needs amply as long as I don't go full reference-level, which I almost never do; an almost-

At a Glance

- \+ 15 x 150 watts of power
- \+ Audyssey and Dirac (extra-cost) room correction
- \+ Comprehensive surround and up-mixing abilities
- \+ Flexible amplifier, channel assignments
- \+ HEOS multiroom/streaming ecosystem
- − No system-wide user-presets
- − On-board (HEOS) streaming omits some subscription services

Price: $6499

www.denon.com

equally adept 10-inch job from the rarely used TV room (my wife, its most frequent user, is almost certain not to notice its absence, and would probably welcome it if she did); and another 10-incher that lives under my desk, adding an octave or so to my desktop monitors.

I hauled the TV-room sub into my studio and placed it about a third of the way along the left-hand long wall, while my everyday sub remained in its well optimized position about a meter out of the right-hand corner, fairly close to the right-front speaker. The second 10-incher I left under my desk about midway along the right long wall, merely re-routing it to a long RCA cable snaked along the perimeter of the room to avoid tripping and killing myself. (Ask me how I learned to do this *always* with "temporary" cables.)

The Dirac Live Bass Control calibration process, once I'd re-measured the system with the three subs in place, is fairly straightforward, but the tuning options are more than we can go into here and, frankly, probably more than the average, non-audio-geek homeowner/home-theater user will likely want to undertake; that's what custom-install pros are for. But the results were pretty clear: smoother, completely non-localizable bass, better deep-note pitch definition on music, and less "bloom" (or boom) on film sound effects. But to me, Bass Control's greatest virtue was evident on Atmos concert-hall recordings, which produced the rolling, space-reverberant, timbrally rich low-end that you hear in an actual concert hall, but that even very high-end systems (including mine) struggle to master. (This was music I mostly streamed from Apple Music via my Apple TV/4K box. Classical from Apple Music, as opposed to Apple Classical, is a bit of a scavenger hunt: annoyingly Apple *still* doesn't have an Apple Classical app for the TV/4K, which you absolutely need to stream Atmos music to a multi-speaker system—casting from a phone or iPad is only stereo, an AirPlay restriction. But I'm getting a little off topic....)

Dirac's price structure is four-tiered from $259 for the most basic, low-frequency-only Dirac Live, to an eye-watering $799 for the full-bandwidth, multi-subwoofer option I was able to use, but to those determined to turn over every rock for improved sound, price is no object. On the other hand, the Audyssey XT32 that the AVR-A1H includes at no extra charge delivers all the prime benefits of room correction in a process that's considerably more user friendly.

Specs

POWER OUTPUT: 150 watts per channel (20 Hz-20 kHz, 0.05% THD, 8 ohms
DIMENSIONS (WxHxD, Inches): 17.1 x 7.7 x 18.3 in.
WEIGHT (Pounds): 70.6
AUDIO INPUTS: 7x HDMI (1 eARC), 2 coax, 2 optical digital, 1 USB (front panel media only), 1 charge-only; 4 analog stereo line, 1 XLR balanced, 1 MM phono.
AUDIO OUTPUTS: 17x speaker (15 active simultaneously: up to 4 assignable to zones); 17.4-channel preamp outputs (assignable Height-2/Zone-3, 2), 4 discrete subwoofer outputs on balanced XLR and RCA, 2 stereo zone line-outs
VIDEO INPUTS: 7x HDMI
VIDEO OUTPUTS: 3x HDMI (1 eARC, 1 zone)
WIRELESS: Bluetooth (RX/TX) 4.2 A2DP/AVRCP/aptXHD; Wi-Fi Chromecast, Airplay2
ADDITIONAL: FM 75Ω "F" antenna; AM-antenna push-terminals; Ethernet (network, control, streaming); RS-232 (control); 2x 12v-trigger; remote in; 2x Bluetooth/Wi-Fi antenna

LISTENING

My initial impression, formed within about 15 minutes of lighting up the big Denon, was that the AVR-A1H is very probably the best-performing AV receiver I've used in 25 years of trials. Everything I threw its way sounded, clear, well-balanced, and musical or cinematic.

I always start with stereo, no-subwoofer music, and the Denon's playback in this garb was fully audiophile-grade. A fine (and oft-cited) recording like "The Blues Walk/Here I Am" from *Lyle Lovett and his Large Band* highlighted dramatic dynamics from the brass, bass, and drums, but delicately drawn, very-expensive-microphone detail on Lovett's spoken voice, piano, and guitar.

Surround music was ear-opening, doubtless in no small part due to my upgrading to the 13-speaker layout. (The addition of Front Wide speakers, which my long-ago colleague Tom Holman, of THX fame, has long advocated, made a very real contribution to hall-sound vitality and proscenium spatiality.) A nicely produced rendering of Rachmaninoff's "Symphonic Dances" (Berlin Philharmonic, Apple Music/Atmos) put me about 20 rows back on the floor, with the air, height, and breadth of the hall, and aforementioned bass richness all palpably evident, while timbres from the famous density of the Berlin strings to the exciting presence and bite of the brass were entirely convincing.

Of course, I listened to some non-classical Atmos music as well. The tasteful Atmos remaster of the Fleetwood Mac chestnut "The Chain" (do us boomer reviewers ever listen to anything else?) ably demonstrated how well-applied spatial audio can make it easier to tease out the various musical strands of a song: in this case, Lindsey Buckingham's multiple guitar parts. Distributed artfully across the full front hemisphere, the distinct timbres and articulations of each were much clearer than in stereo. Spatial is not a guaranteed win, however: I found the Atmos rendition of U2's "Mysterious Ways," a tune that sounds just-okay in its original stereo, to come across as frankly harsh and unpleasantly gimmicky.

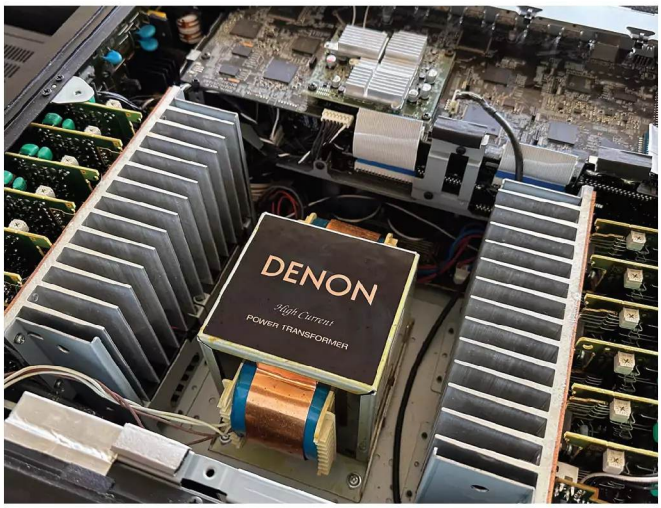
I judged Apple/Spielberg's/

Hanks' final WWII epic *Masters of the Air* disappointingly wooden and anachronistic, with far too many dialogue lines and haircuts you'd never have encountered in the 1940's. But you can't fault its Atmos soundtrack's action scenes for spatial effects. All the dogfights, fly-bys, and chattering machine guns and explosions were quite mesmerizing, and the AVR-A1H reproduced them faultlessly through my 13 speakers—none of which could really be called high-sensitivity—at reference level without the least sign of effort. And, even after a full episode, its top cover was barely warm to the touch, but no more.

Oppenheimer on 4K Blu-ray is, I think, a must-own disc. This despite the fact that Christopher Nolan's opus is only a 5.1-channel (DTS) soundtrack, though on the upside this made a fine test of the Denon's upmix to DTS Neural/X—and the results did not disappoint me in the slightest.

A brief, six-degrees-of-Kevin Bacon diversion: my dad was there, plucked out of basic training by a possibly life-saving IBM punch card machine (he was likely bound for D-Day) and shipped blind to Los Alamos, New Mexico as T/sgt. scientist/technician. He was much too small a fry to appear in the film (though Kai Bird did spend a day interviewing him for *American Prometheus,* the book from which the movie was derived), but his boss and former professor, George Kistiakowsky, does, in a minor role.

Oppenheimer is as meticulous an audio-video production as Hollywood can provide, and the big Denon did it full justice. In its upmixed DTS Neural/X 13-channel form, the detailed spatialization was impressive: the tighter, more claustrophobic ambiance of the black-and-white scenes, vs. the expansive, outdoors ambiance of the colorful New Mexico scenes, was precisely reproduced. And, of course, the relatively few big-audio scenes—mostly, unsurprisingly, explosions of one sort or another—presented with awesome breadth, power, and... well, awesomeness.



AND ALL (OR AT LEAST SOME OF) THE REST

Clearly, I found no sound-quality (or quantity) issues from the AVR-A1H, but there's more to any AV receiver than audio performance (and room correction). Denon delivers the usual three-zone abilities, including HDMI output to a secondary room. It also delivers 8K throughput and upscaling of 4K, if anybody cares (I don't). More important in my book are the Dolby Vision and HDR10+ video-dynamic-range enhancement modes and the VRR (variable refresh rate)/ALLM (auto low-latency mode) for lag-free gaming (gamers will know what this means better than I do).

Perhaps most saliently, the big AVR-A1H fully participates in Denon/Marantz's HEOS multiroom/streaming ecosystem, which recently received a significant update to its various apps. I downloaded the latest iOS HEOS version to my iPhone XS and dug in.

HEOS' layout is now simpler and more intuitive: finding the streaming service, Internet-radio stream (via TuneIn), or local server if you have one is more straightforward, as is navigating track info. Major streaming services, including Spotify, Pandora, and Tidal, are baked in—but not, unfortunately, the two to which I subscribe: Qobuz and Apple (Music) Classical. So I signed in on Amazon Music for a go, and found a reasonably responsive track and playlist response, and easily navigated design. Digging deeper into a service's offerings is still a bit "pagey," but that's equally true via most smartphone/tablet access points.

HEOS integrates the AVR-A1H's multiroom capabilities in a simple and accessible screen. I played with this briefly, temporarily using my front-side speakers as "Zone 2," and found it straightforward. However, I can't comment on its usability with Denon/Marantz HEOS wireless speakers or its Sonos compatibility, which is another major selling point.

While we're in the streaming aisle, the big Denon's Roon compatibility is limited to "Roon Tested," which means it participates via AirPlay or Chromecast, not as a direct, hi-rez-capable endpoint. A little disappointing—or not, depending on your belief system regarding hi-rez audio. For whatever it's worth, I listened extensively via Roon/AirPlay and had no complaints.

Now a few items from the "extra stuff" column: Denon supplies three bonus spatial-sound modes: IMAX Enhanced (which includes video "enhancements"), Auro3D, and 360 Reality Audio—all rewarding to play with. A valuable Info command instantly steps through three screens of detailed reports on the currently selected input, audio and video content settings and modes. Alexa, Siri, and Google Home compatibility are all on tap—none of which I fooled with since I am simply too 20th-century to talk to a machine. Audyssey's companion functions Dynamic Volume and Dynamic EQ, both of which I rate highly for real-world utility, are on board.

The Denon AVR free app (iOS/Android) provides an alternative to the supplied remote control and includes a web-control page that can access a level of geeky settings and function detail unavailable otherwise. There's two-way Bluetooth, for listening (main zone) via wireless headphones or speakers. And finally, two (but only two) Speaker Preset registers store combinations of speaker configurations, levels, distances, crossovers, and so on, whether derived manually or via Audyssey or Dirac.

This last raises the one salient—to me, anyway—absence on the AVR-A1H's long features list: It lacks a global preset option, by which combinations of input, surround-mode and other modes, speaker settings, channel-level tweaks, and more can be stored for one-touch recall. Several competing brands—including, puzzlingly, sister-marque Marantz—include such a function, usually with four or more registers. Since I almost always favor slightly different setups for music vs. movies (and classical or jazz vs. pop or rock), streaming radio vs. hi-rez playback, and so forth, I rate these features highly. Why none such is found on the AVR-A1H is a mystery.

But that's about the only gap I could identify in the AVR-A1H's dossier. In every other regard that matters, this is a flagship AV receiver that delivers the flag—and the firepower—to satisfy any would-be AV admiral. Sure, it's expensive. But short of dropping 20 grand on a Storm Audio ISR Fusion 20 (or one of its rebranded equivalents), I'm not sure you can buy more, or better, in a one-box AVR.

The Verdict

A flagship AV receiver fully worthy of the name.

XGIMI HORIZON ULTRA HOME PROJECTOR

I Dream of XGIMI

By Michael P. Hamilton

RATING

PERFORMANCE

FEATURES

ERGONOMICS

VALUE

A SELF-DESCRIBED purveyor of "smart projectors and laser TVs," Xgimi may not be the first brand name mentioned in answer to a man-on-the-street projector query. Though Internet forum gurus and YouTube influencers have done much to espouse Xgimi's evolutionary stable of products, I am willing to wager that the name still escapes a majority of *S&V* readers.

Although it was only a start-up in 2013, by 2019, Xgimi had remarkably established itself as China's largest projector maker. Since then, it has actively pursued steady global expansion opportunities, focusing primarily on the European, Japanese, and North American markets. According to the latest data from mid-2023, Xgimi still occupied that top position.

The Horizon Ultra, reviewed here, represents Xgimi's price successor to its previous top model, the Horizon Pro. Still, an amalgamation of disparate, carefully composited, internal light-launching technologies distances this new machine from a direct comparison with its predecessor.

Insofar as I am aware, fanfare alone does not singularly propel a company into market disruptor status. It must be abetted by achievements relating to performance and consumer acceptance. Conjuring a new range-topping model in this fast-evolving marketplace fraught with high-tech quicksand is a vexing task, requiring hyper-meticulous mechanical and engineering alchemy.

One of a new breed of compact and bright high-performance 4K RGB laser DLP projectors, the XGIMI Horizon Ultra offers lot of features for your money.

So grab a lab coat, and together, we will discover whether Xgimi has successfully bested past efforts or if this is a mere doff of the hat in passing.

(UN)BOXING DAY

Xgimi impressively and safely double-boxes the Horizon Ultra. Inner packaging strongly emulates Apple; it is shrouded in materials suggesting a grander, more upscale purchase (not that the $1,699 should be considered pocket change).

Accompanying the unit is its color-matched, 300-watt, street paver-sized power brick. Many internet influencers oddly find the Ultra as, ahem, *large*. Obviously, none have laid eyes on a Barco Freya+. Still, most fail to point out the size of its power supply, for inconspicuous, it is not. Concerned consumers will find ways to contend with and diminish its presence.

Also included are a Bluetooth remote and an *if you really want this thing to do Netflix* pamphlet (more on this later), plus a documentation pamphlet that has as much in common with a useful manual as Stouffer's might with haute cuisine.

Unveiled, the Horizon Ultra invokes varied opinions. While not overtly off-putting *per se*, the Xgimi Horizon Ultra seems to be aspiring for Oscar Red Carpet-level chic in mixing a flair for 1950s table-radio nostalgia with the boxy aloofness of a Rolls Royce Phantom Series II, pigmented in Palm Beach hues. The Ultra's top and sides are clad in soft-to-the-touch, polyurethane leather, framed by chrome trim in what Xgimi touts as an *exquisite Misty Gold finish*. If Xgimi's marketers are aiming to make the Horizon Ultra welcomely consort with shared spaces, they appear to have succeeded.

One quaint touch is a motorized

panel, comprising what Xgimi describes as flow cover fabric, that silently descends to protect the lens when the unit is turned off. When lowered and parked during operation, the panel's porous weave provides an escape path for the onboard 12-watt Harman Kardon speaker system while permitting air to convect through the unit to assist cooling.

CONNECTIONS

The rear of the Horizon Ultra features eight connectivity ports, similar to those found on other projectors. On the far left is a DC input connected to a 1-meter power cord and brick. A LAN port offers a wired alternative to the built-in dual-band Wi-Fi 6. When devices are connected to either of the two USB 2.0 ports, the system notifies you and provides an option to access the device through the menu.

Two HDMI 2.1 ports support up to 4K/60 fps video signals (one also supports eARC). Gamers needing 4K/120 fps with VRR will need to consider other options. Audio can be output digitally via a TOSLINK optical jack or through a 3.5 mm analog jack, and the system supports Bluetooth 5.2/BLE for connecting to wireless speakers.

A notable drawback is the Horizon Ultra's inability to remember the last input used upon restart, defaulting to the home screen instead. This requires navigating through several menu layers to reach the desired HDMI input, a cumbersome process to be sure. Additionally, the menu system lacks the intuitive, well-organized structure seen in systems like the Hisense C1, which is better suited for professional settings. The absence of a global menu exit button means users must backtrack step-by-step, a tedious process that could frustrate those who are familiar with more streamlined interfaces.

The metal-bodied remote implies durability yet offers minimal functionality beyond basic operation. It lacks backlighting and tactile cues, making it challenging to use in the dark. The remote, despite instructions, fails to activate the menu, and all buttons except the slightly raised navigation circle and volume buttons are identically flat, making them hard to distinguish. Crucially, it lacks an input selection button, requiring users to familiarize themselves with its layout over time.

Despite being marketed as a long-throw projector, it behaves more like a mid-throw projector, suitable for positioning about 8 to 10 feet from the screen. This misnomer could confuse users accustomed to the longer placement flexibility of traditional long-throw projectors. In basketball analogy terms, if ultra-short throw (UST) projectors are like lay-ups and traditional long-throws are three-pointers, the Horizon Ultra, with its 1.2:1 throw ratio, is a free-throw shot.

The Horizon Ultra features an optical zoom that adjusts the screen size to accommodate minor placement changes, extending the throw ratio to 1.5:1. However, using the zoom to decrease the image size, especially when the projector is further from the screen, can cause the internal raster light to overshoot the active image boundary on the lens, creating a distracting halo as the image shrinks.

The optical zoom is visually represented onscreen by a speedometer-like indicator. It starts with red demarcation points forming half a circle, which rotate counter-clockwise as the image size decreases. As the process continues, these points turn white, signaling an increase in light spill that becomes more visible, while adversely impacting contrast ratio. It's advisable to keep the optical zoom at its default setting to avoid these issues.

While useful for slight adjustments, the Horizon Ultra, like similar projectors, primarily relies on changing its physical distance from the screen to alter image size. Optimal placement should minimize, but not eliminate, light overshoot. This contrasts with traditional long-throw projectors, which offer a broader range of placement options without significant light spill, often masked by a feature called blanking.

At a Glance

- (+) Accurate color out of the box
- (+) User-friendly auto-geometry set-up adjustments
- (+) Movie-friendly Dolby Vision and HDR
- (+) Another amazing autofocus application
- (+) Unique hybrid laser/LED light engine
- (−) Image size relies principally on physical placement
- (−) Sub-class-leading contrast
- (−) Ergonomic quirks that should long be resolved
- (−) Mediocre remote, lacks backlighting
- (−) In the room-to-room category, but handle-free

Price: $1,700

LIGHT ENGINE AND OPTICS

The Horizon Ultra utilizes TI's 0.47-inch 4K DLP chipset with rapid pixel-shifting and supports Dolby Vision, HDR10, and HLG. Its hybrid laser-LED light source combines one red laser with one red, one green, and two blue LEDs. It achieves 99.9% of the ITU709 HDTV standard and 95.5% DCI-P3 color gamut, ensuring vibrant colors for Dolby Vision and HDR content. The projector's lens works with automatic geometry correction, keystone, focus, and object avoidance, standard features in modern room-to-room projectors, to produce sharp images across the entire screen. Xgimi claims its design significantly reduces or eliminates speckle, a common issue in RGB laser projectors, which I only noticed minimally in over 500 hours of use.

In comparison with tri-laser projectors, speckle was barely noticeable unless I was very close to the screen, a minor issue also slightly apparent on the Hisense

Test Bench

Calibration equipment includes a NIST-certified Minolta CS-200, Murideo 8K SIX G and 8K SEVEN signal generators, Bullet Train HDMI cables, and Calman software.

Posting settings for projectors are a bit like Fool's Gold. Since the projector, screen, and room comprise a system, it is impossible to duplicate results based on plugging in numbers. For flat panels, it is more like a game of horseshoes...you can get close. Still, flat panels deviate between manufacturing runs as parts substitutions often require firmware changes that fail to translate transparently.

The review depicts the few changes I made that deviate from default, especially after using High Color Accuracy. I discovered that despite the assortment of adjustments that would make a seasoned calibrator salivate, overuse by even a slight bit does not produce the desired results.

While the unit has a full-color management system, massive CMS adjustments are required to make Calman look "nice." Still, a perceptible amount of noise is injected into the image (it appears like a DLP mirror dithering). Same with the two Color Temperature categories.

As described in the review, Color Temperature may be preset to Standard, Warm, and Cold or incrementally adjusted in Custom. Unlike Picture Color Temperature, the adjustments are not divided into Gain (bright range of the image) or Offset (dark range of the image). They are for Red, Green, and Blue, with adjustments ranging from one to 10. These are essentially the individual gas pedals for the laser and the LEDs.

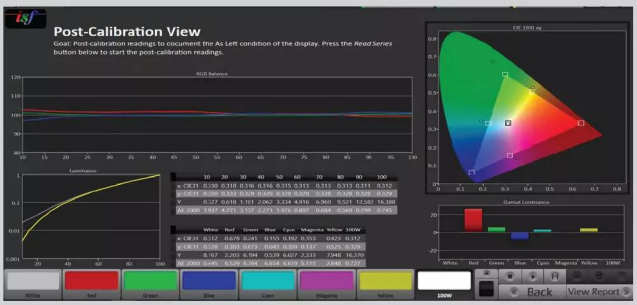
The Picture Color Temperature serves to trim color response, with moderate adjustments making substantial changes in the image.

In the first post-calibration data graphs below, color fidelity would appear to have been dramatically improved based on how the graphs appear. What occurs onscreen paints a different picture, creating an unwatchable, grainy image. This is similar to early LG 4K OLEDs (long since corrected), where more than a few changes in either direction from default drastically affected image fidelity.

The second post-calibration data graph shows my perceptual settings after the High Color Accuracy procedure. While access to adjustments is made available, it is under the hood where Xgimi engineers have balanced things so HCA works properly. Given that HCA itself is the default preset (or LUT), changes made on top of it are not as linear and far more interactive than thought to be.

HCA will work fine for most people, with the Horizon Ultra unlikely to see routine calibration.

Pre Cal Standard Picture Mode



Post Cal Capture with Great Graphs and Viciously Noisy Image

High Color Accuracy Capture (Note CMS) with MPH Adjustments per Review. (2.4 Gamma, Green Gain = 47, Blue Gain = 45 Dynamic Contrast On, Color Optimization On)

Specs

PROJECTION TYPE: DLP (0.47" DMD)
LUMENS: 2,300
LAMP LIFE: 25,000 hours
THROW RATIO: 1.2:1-1.5:1
DIMENSIONS: (inches) 8.8 x 8.7 x 10.4
WEIGHT: (pounds) 11.5
VIDEO INPUTS: 2X HDMI 2 with eARC
AUDIO: 3.5mm headphone analog-out, optical digital (Toslink)
USB: 2 (1 x 2.0, 1 x 3.0)

C1 using an unknown light engine with an Elite AEON CLR screen. However, it was undetectable from a normal viewing distance and less so on a Stewart Studio Tek 100 matte screen, possibly due to the screen's lenticular filtering and light properties.

Despite Xgimi's brightness claim of 2,300 ISO lumens (about 2,873 ANSI lumens), actual measurements under ANSI's guidelines averaged only 1,303 ANSI lumens.

HARMAN KARDON AUDIO

Once prominent in home audio, Harman International scaled back its harman/kardon-branded products in 2021 to a few portable Bluetooth speakers, although the brand continues to make a mark in automobile audio—a sector possibly influencing the DC-powered Horizon Ultra's sound components. The system, lacking any high-end Mark Levinson features, neverthe-

less delivers a dynamic audio experience that met my needs for solo listening using the default settings.

Exploring the sound menu, I opted for the DTS Virtual X over Harman Kardon Original for watching hockey and Formula 1 racing, appreciating the slight emphasis on clearer voices, which complemented the Movie mode well among the other sound settings of Music, Sport, and Game. Generally, the onboard audio of room-to-room devices like this tends to be merely adequate rather than exceptional.

SMART TV OS

Xgimi includes the Android TV 11 OS with the Horizon Ultra. Whether due to Bluetooth or OS processing, navigation was nigglingly pokey compared with the same procedures on Apple TV. And if Apple is your platform of choice, setting up apps with user names and passwords is the usual hunt-and-peck nightmare using the dreaded on-screen keyboard. Another peeve is the exclusion of the Netflix app and its conflict with Google Play, along with the sideshow of trying to follow pamphlet instructions enclosed in the box to place Netflix onto the machine using a third-party, 1080p workaround, sans Dolby Vision. Sorry, that's no bueno.

IMAGE QUALITY

I integrated the Horizon Ultra into my office setup during the F1 2024 pre-season in Bahrain. After extensive wear-in, I made several adjustments on the Elite AEON CLR screen, settling on the High Color Accuracy (HCA) setting, which proved satisfactory. I turned off Local Contrast and Noise Reduction, while activating Dynamic Contrast and Color Optimization. I adjusted Saturation to 42 and Gamma to 2.4. HCA modifies Color Temperature to Warm and Standard, with Warm aligning with RGB laser control and Standard preventing further fine-tuning. I opted for Custom, reducing green and blue gains to

47 and 45, respectively, achieving a pleasing image quality with enhanced contrast.

Streaming the F1 app from Apple TV showcased the projector's impressive image processing, displaying smooth color transitions without banding during a sunset scene. Its motion compensation, set to medium, effectively eliminated judder during sports broadcasts, maintaining clear and consistent motion across various streamed events.

However, Dolby Vision didn't live up to expectations, lacking the clarity seen on other displays like my Sony OLED, particularly in distant shots during a Taylor Swift concert. This highlighted some limitations in the Horizon Ultra's contrast capabilities, which I'll detail more in the conclusion.

GAMING

The Xgimi Horizon Ultra, while accommodating gamers, is not primarily designed for gaming. Its Game Mode, which activates automatically when a console is connected, aims to reduce image latency by sacrificing geometry adjustments. The cause of this performance compromise—whether due to slow processing or inadequate chipset power—remains unclear, but such issues are common in portable projectors.

Notably, the Ultra does not support 4K/120 fps with VRR. Latency, as measured with a Murideo 8K Seven generator, showed a significant drop from 143 ms in Custom mode (with Game mode off) to 24 ms in Game mode. However, activating Game mode disables geometry adjustments like keystone, which is important to consider for setups requiring alignment corrections.

CONCLUSION

Disregarding the often misleading and fluffy reviews from less credible online influencers, the Xgimi Horizon Ultra deserves careful consideration for its robust consumer-grade image quality. It's important to clarify that while it offers impressive performance, it is not on par with professional monitors like the Sony BVM-HX3110. Despite some feature limitations, the Horizon Ultra's out-of-the-box performance, particularly when utilizing the High Color Accuracy setting, convincingly justifies its price for general media consumption—provided it's not projected onto a plain wall.

My personal viewing experiences with the Horizon Ultra were quite satisfying, especially when paired with a high-quality screen like the Elite Aeon CLR. This setup significantly enhanced my enjoyment of live sports and other dynamic content. However, the projector's ability to handle cinematic black levels was underwhelming. This was particularly evident when comparing scenes on Disney+ that I had previously viewed on the Hisense C1, which offered markedly better contrast and depth. The difference was like comparing a relief globe showing detailed mountain ranges to one with a flat surface; the C1 provided a more immersive and dimensional viewing experience.

If I had not already experienced the Hisense C1's superior contrast and depth, the Horizon Ultra might have coaxed my top recommendation. However, the Hisense C1's sophisticated lens and triple-laser setup not only enhance its visual depth but also improve the overall fidelity of the audio presentation, tipping the scales in its favor in a direct comparison.

The market is seeing an increase in manufacturers producing similar cube-style projectors, with BenQ with its all-LED GP500, and lesser-known Chinese-based Fengmi/Formovie with its X5, being notable examples. Each of these units needs to be evaluated on its own merits, and constant comparisons can be as futile as obsessing over the perfect camera purchase—only to feel confident at a moment far too late for the intended purpose.

Xgimi's dual laser/LED lighting technology, which is commendable for its brightness and wide color gamut, unfortunately, sacrifices the deep blacks needed for true cinematic depth. This is akin to experiencing The Doors' "L.A. Woman" with an incongruent Mozart-like violin replacing Jerry Scheff's iconic bassline. The lack of deep or even darker blacks diminishes the overall depth and color saturation, impacting the cinematic experience.

In conclusion, while the Horizon Ultra may not be the best fit for cinephiles seeking the utmost in cinematic authenticity, it is certainly recommended for more casual viewers. Its strengths in general broadcast and live sports viewing make it a viable option for many households. However, for those who are particularly discerning about cinematic quality, especially in darker scenes, there might be more suitable projectors on the market that better meet those specific needs.

The Verdict

As Larry David often says in Curb Your Enthusiasm: "Pretty good... pretty, pretty, pretty, pretty good." Balancing most aspects critical to me and fancying the Horizon Ultra, I would tend to echo Larry. You may like this projector for your intended use as well. Ultimately, though, after a solid month of steady use, just enough fell slightly outside the bullseye, particularly a less-than-ideal contrast ratio but also a few grating ergonomics that, for now, my AMEX will remain at its zero balance.

MAGNETAR UDP800 ULTRA HD BLU-RAY DISC PLAYER

SOUND & VISION TOP PICK

RATING

PERFORMANCE ★★★★★

FEATURES ★★★★½

BUILD QUALITY ★★★★★

VALUE ★★★★½

Dedicated to Discs

By David Vaughn

THOUGH THE famous Samuel Clemens (Mark Twain) quote, "The reports of my death are greatly exaggerated," has been twisted over time from the original quote, "The report of my death was an exaggeration," both very much apply to the state of physical media today. Physical media is far from dead even though Best Buy has decided to stop selling DVDs, Blu-ray, and 4K Ultra HD Blu-ray discs both in stores and online. The only people cheering Best Buy's decision are the stockholders of Amazon, Walmart, Target, and other smaller online marketplaces who will now increase their market share of physical media.

Regardless, physical media isn't going away anytime soon. Just look at the release of the Oscar-nominated *Oppenheimer*—it sold out within days upon its release in December 2023 and the studio had to issue a press release saying that more physical copies were being produced and would be in stores as quickly as possible. Was this a case of the bean counters underestimating

Magnetar fills a gap left by Oppo by offering a premium universal disc player with a focus on high quality audio as well as pristine 4K video.

demand or of consumers wanting the best presentation possible for the Best Picture of 2023. Regardless, NBC/Universal was thrilled with the response to the movie, and their new collaboration with Christopher Nolan is off to a resounding start.

As much as I personally love physical media—and my collection of over 2,000 titles will attest to that—I can't say that I don't stream a good quantity of my entertainment these days. While the picture quality has come a long way due to advanced compression technologies, the audio still leaves a lot to be desired with the low-bitrate Dolby Digital Plus. Until the streaming companies can figure out a way to give us uncompressed Dolby Digital Atmos and DTS:X, those who want the absolute best quality are going to stick with physical discs to consume the best that Hollywood has to offer, so the need for a top-quality Ultra HD Blu-ray player isn't going away anytime soon.

For years, Oppo was my brand of choice. Not only were its players built well, but the company offered arguably the best service of any A/V company on the planet. Sadly, in 2018 they discontinued all production of their UHD Blu-ray players and, while the secondary market is loaded with used players (at three-times what the players sold for new), they weren't the only brand to drop out of the space. Shortly after Oppo's decision, Samsung and Pioneer followed suit, leaving consumers with fewer choices.

Thankfully, the market has a funny way of working things out. Panasonic, Sony, and LG stayed in the Blu-ray game and have since been joined by new brands willing to pick up the slack. One such brand is Magnetar, a company based out of China with distribution in Europe from Archisoft, the company behind the Reavon brand and its U.S. subsidiary, Let's Get Physical Distribution.

The Magnetar UDP800 is a universal disc player that plays not only UHD and HD Blu-ray but DVD, CD, SACD, DVD-Audio, and even Kodak Picture CD. Additionally, the player supports Dolby Vision and HDR10+ high dynamic range (HDR) and is equipped to play media files encoded in H.265 and H.264 . Finally, it can also play music and movie files from your home network or a connected external hard drive (up to 16 terabytes).

BUILD QUALITY

When the Magnetar first arrived from FedEx, I was shocked at how similar the packaging was to Oppo's—double boxed with the player wrapped in a high-quality bag and firmly secured with a Styrofoam top and bottom. Unlike the Oppo, the remote and power cable don't come in their own box, but they are securely packed under the player in precise foam cutouts. Also included in the box is a well-written user manual that is already outdated due to new functionality that has been added via firmware, so expect to see some slight variations to the menus versus what's shown in print.

The build quality of the UDP800 is top-notch with a large power transformer, double-layer 1.6mm chassis, and 3mm-thick steel under-plate, which helps explain its 17.6 pounds of heft. This isn't a dainty player by any stretch. Why does weight matter? It reduces vibration and the noise it generates when a disc is playing; it can be quite distracting to hear a player during quiet film passages. Furthermore, internal components such as the tray mechanism and power supply are independently shielded to reduce external magnetic fields. For $1,599, you expect solid construction and that's what you get with this player.

The two-toned brushed aluminum front panel is very attractive (if you find A/V components attractive—I do, so please don't judge). The disc drive, front and center, is whisper quiet and as sturdy as they come. Actually,

At a Glance

- Fantastic build quality
- Universal disc capability
- Analog XLR audio output
- No Wi-Fi or onboard streaming apps
- Horrible remote

Price: $1,599

magnetar-audio.com

MAGNETAR UDP800 ULTRA HD BLU-RAY DISC PLAYER

it's the sturdiest disc tray I've seen in any disc player commercially released over the past 25-plus years. Above the disc tray is an easy-to-read LCD display window with a USB input to the left and Eject, Play/Pause, Stop, Previous, Next, and Power buttons to the right.

One item of note, this is the first player I've ever used that can't be turned on by hitting the Eject button. To get the tray to open, you must first hit the Power button and then wait about 3 seconds to open it. I've grown used to this, but it's something my wife has complained about more than once. What's strange is you can boot up the player by hitting the Eject button on the remote. When I asked the company if this is something that could be addressed in firmware, they informed me that it could not be changed, so it remains a minor annoyance.

The rear panel includes an Ethernet/LAN port, dual HDMI outputs (one Audio only), a USB v3.0 port, two digital audio outputs (one coax, one optical), an RS-232C port, and two sets of gold-plated analog stereo outputs, one of which is balanced XLR. Some may balk at having only stereo outputs in lieu of a full suite of 7.1 outputs but, frankly, it avoids rack clutter and I like the convenience HDMI offers. In listening tests, I was unable to detect any difference between the HDMI and analog connections.

One feature missing from the player is Wi-Fi, so you'll need to have Ethernet wired to your rack to use the networking features of the player. If you're looking for an all-in-one box with apps from Netflix, Amazon, Apple+, and other major streaming providers, this isn't the player for you. Frankly, the standalone streaming boxes are the way to go anyway.

Internally, the UDP800 boasts a pair of 32-bit, 192-kHz Burr-Brown PCM 1795 DACs to handle the two-channel digital-to-analog conversion along with a MUSES8920 OP-AMP to ensure high-quality sound. A Media Tek MT8581 SOC (system-on-chip) is employed for 4K UHD playback and upscaling with support for Dolby Atmos and DTS:X surround sound. Yes, this player does it all.

Specs

BD-LIVE: Yes
3D: Yes
AUDIO DECODING: Dolby, Dolby Atmos, Dolby TrueHD, Dolby Digital Plus. DTS; DTS:X, DTS-HD Master Audio, DTS-HD High Resolution
HDMI VIDEO RESOLUTIONS: 4Kx2K, 1080p/24, 1080p, 1080i, 720p, 576p, 576i, 480p, 480i
COMPATIBLE PLAYBACK FORMATS: UHD Blu-ray, Blu-ray, Blu-ray 3D, DVD-Video, DVD-Audio, AVCHD, SACD, CD, Kodak Picture CD, CD-R/RW, DVD±R/RW, DVD±R DL, BD-R/RE
DIMENSIONS (W x H x D, Inches): 17 x 3.5 x 12
WEIGHT (pounds): 17.6
VIDEO OUTPUTS: HDMI x 2 (main + audio only)
AUDIO OUTPUTS: Coaxial digital (1), optical digital (1), stereo analog (1), stereo analog XLR (1)
ADDITIONAL: Ethernet, (1), USB (2), RS-232

USER INTERFACE

The player comes with a backlit wand-style remote that I'm not a big fan of. First off, it's cluttered with over 48 different buttons and, while it does light up, you need to hit the "light" button, which isn't exactly intuitively placed on the side of the remote. Granted, I'm not a fan of most stock remotes, which is why I use a URC MX-990 in my theater. For those looking for a Magnetar app to control the player with your phone or tablet, you're out of luck—none is offered.

At one point, a lot of players offered an "auto setup" program that kicked in the moment you turned the player on, but I can't remember the last time I saw that. Regardless, setting up the UDP800 is quite simple, and those familiar with Oppo players will find the menu system very familiar. The Main Menu is broken down into six sections: Disc, Photo, Music, Video, Network, and Setting. Each section is so intuitive that I was able to navigate through them without having to crack open the owner's manual.

The Settings tab has the usual array of functions such as Display, Audio, Playback, Network, Security, Languages, and Option. Owners of outboard scalers will be happy to learn that the player has a "Native" output setting to allow your scaler to process the video image. Normally, this would be my choice, with the output going to my reference JVC DLA-NZ8 projector, but my wife still watches the occasional DVD and the projector can't process a 480i image. I ended up using the 4K2K output for the majority of my testing and found the player to be excellent at upscaling 1080p Blu-ray discs in addition to passing 4K UHD images natively at 2160p.

REAL-WORLD PERFORMANCE

When Oppo stopped manufacturing new players I was worried about long-term support and decided to replace the BDP-203 I had been using with a Panasonic DP-UB820 to ensure I could keep the player up to date with the latest firmware. Unfortunately, I jumped the gun and have since learned that Oppo has continued to support the player all these years later. While the Panasonic has served me well, the build quality pales in comparison to the Magnetar. It's not even close. The Panasonic's disc tray is so flimsy that I worry about it snapping off if I'm not careful when placing a disc in it. Furthermore, the Panasonic doesn't play MKV files with full audio resolution–something the Magnetar offers. I have hundreds of movie clips saved for demos that are a breeze to access either through my home network or via an attached USB drive. This is one area where the Magnetar shines.

I rarely listen to music saved on my home network because I've gotten spoiled listening to high-resolution tracks from Amazon Music, which is a great deal at less than $10 per month. But that didn't stop me from streaming some FLAC files I still have on my Synology server. As expected, the files loaded and played with ease. My wife particularly liked being able to use the player to go

through old photos stored on our network. Even though she's not the most technologically-minded person, she had no problem figuring out how to work her way through the menu system.

Since the player is, first and foremost, a disc player, that's what I spent most of my time using and testing. Other than a few UI quirks, the UDP800 played back every disc flawlessly. Since becoming empty nesters, our evening ritual includes watching an episode of an old classic sitcom. Our current show of choice is the 1960s hit *Hogan's Heroes*, which I purchased on Blu-ray. While the show is formulaic, the writing is pretty good, and we enjoy the cast of characters. The Blu-ray transfer isn't anything to write home about, given the age of the show, but it certainly looks better than what you'd see on cable or satellite, and better yet, there are no commercials to deal with. I've had the player for a couple of months, and we've gone through three seasons of the show and playback has been spectacular with accurate color reproduction and speedy navigation.

I wouldn't consider myself a huge fan of *The Hunger Games* franchise, but I like entertaining movies, and when *The Hunger Games: The Ballad of Songbirds & Snakes* came in for review, I definitely looked forward to giving it a spin. While the movie is middling, the 4K presentation is about as good as it gets. It sports a 4K DI (digital intermediate) and this certainly shows throughout the film. The sepia-toned color grading is to die for, and the detail in the picture is mesmerizing down to the most minute details in clothing and facial pores. Not to be outshined, the Dolby Atmos soundtrack is full of demo-sequences. Thankfully, the Magnetar loads the disc in less than 30 seconds and its well-built disc mechanism never made a peep—everything you'd expect from a top-notch player.

Turning to music, I had to dig through my attic to find some shiny discs to play. After I sold my Oppo, I moved away from discs

and went to full-time streaming for music, but I realize there are still a lot of people with large music collections. Thankfully, I kept a handful of SACDs and DVD-Audio discs just in case I ever needed them again.

I dusted off a copy of the *Footloose* soundtrack on SACD to relive some of my teenage angst from the 1980s. The title track was the main reason I purchased this disc over 15 years ago, and the Magnetar does it justice. I let the player handle the decoding and sent analog audio to my Trinnov Altitude16 processor. The presentation was impressive. The song has a lot of energy and, yes, it comes with a good dose of cheese, but once you hear it, you can't get it out of your brain, so it's no wonder the song went to No. 1 on the Billboard charts. Kenny Loggins' voice is front and center and the track dates itself with an overreliance on synthesizers and drum machines but, hey, that was the sound of the 80s!

The Magnetar doesn't color the music one bit and its analog output delivered a nice spread between the synthesized instruments and the song's memorable lyrics. In one listening test, I pitted the analog output against the HDMI output to see if I could hear a difference but found that I would be hard-pressed to pick one over the other in a blind test. Personally, I prefer HDMI for its ability to minimize rack clutter, but if you prefer a gaggle of cables, more power to you. I sampled various other DVD-Audio discs as well as Redbook CDs and had no complaints.

I briefly mentioned the issues I had with operating the player via its front-panel controls, but there are a few other minor quirks that need to be mentioned as well. For starters, after you put a disc in the tray, you have to hit the Eject button to close the tray, even when using the remote. In every other player I've used, hitting the Play button usually closes the tray and starts playback. Not so here.

Another minor annoyance is when you hit the Display button, it tells you how much time has elapsed in the movie, instead of how much time is remaining. Thankfully, Magnetar has acknowledged this problem and plans to address it in a firmware update (which may have already occurred by the time you read this).

Speaking of updates, this is another area where the UDP800 shines. Since I've been using the player, Magnetar has issued multiple firmware updates to fix potential disc compatibility issues and add new features. One lets you export and import your preferred player settings, which is very handy, since the player reverts to its factory setting after every firmware update. I highly recommend backing up your settings once you've settled on what works best in your system.

SUMMING IT UP

Since Oppo stopped making Blu-ray players, I've been hunting for a 4K UHD player that equals or surpasses the build quality of the BDP-203. It's taken me six years, but my search has ended. The Magnetar UDP800 has everything a disc lover desires: sturdy build quality, a whisper-quiet transport, and the ability to play virtually every 4.75" disc known to man (except HD DVD). Throw in the fact that the company keeps the player in tip-top shape with frequent firmware updates and it's easy to see why it is worthy of receiving our Top Pick designation.

The Verdict

The players build quality is top-notch, but there are a few quirks that need to be addressed.

SAMSUNG 75" QN900D 8K QLED TV

Sharper Image

By Greg Tarr

RATING

PERFORMANCE

FEATURES

ERGONOMICS

VALUE

THE QN75QN900D Neo QLED TV is the 75-inch model in Samsung's 2024 flagship 8K mini-LED LCD TV series, and it delivers a brilliantly bright, colorful, and detailed picture from most content. The series replaces last year's flagship 8K Neo QLED models, offering a thinner panel design, significantly brighter picture, a native refresh rate up to 144 Hz for advanced gaming, and the company's out-board One Connect box, allowing for a very-thin panel depth and perfectly flat back, so the TV sits flush against a wall despite being a full array backlit display with local dimming.

Samsung's Neo QLED technology leverages quantum dot color technology for high color volume and notable accuracy. Quantum dots and mini-LEDs together boost peak high dynamic range (HDR) and standard dynamic range (SDR) brightness while using more than 1,000 local dimming zones to maintain contrast. This produces greater control over fine shadow detail while elevating peak HDR luminance levels—we measured nearly 2400 nits! The result is life-like HDR specular highlights that preserve color details nicely in cinematic content, live video, and video game graphics.

This year, Samsung introduced the third generation of its Neural Quantum 8K AI Processor, which uses the company's color tone mapping technology to make images look lifelike and colorful. Our tests found it to be great at rendering bright, accurate colors, including those that go beyond the wide DCI-P3 color space, without

adding any noticeable embellishment or artifacts. The artificial intelligence (AI) processing in this latest model enhances 4K HDR content to almost 8K quality on a scene-by-scene basis. It also provides exceptionally clear native 8K images, although there are only a few 8K videos available for testing this.

The TV's advanced 8K AI video processing effectively enhances native 4K UHD content. However, the 75-inch model we tested struggled to fully improve content due to insufficient video image information, embodying the principle of "garbage in, garbage out." Despite having 33 million pixels at its disposal, the large 8K screen made some low-resolution SD and HD programs—typical of certain YouTube videos—appear softer and less vibrant compared with how they looked on smaller 4K UHD screens.

Among the highlights of Samsung's new 2024 features, the NQ8 AI Gen 3 "Neural Quantum" processor stands out, boasting double the speed of last year's processor and an eightfold increase in neural networks (from 64 to 512). This leap allows for crisper image details from most sources. The processor powers several innovative picture quality enhancements. These include 8K AI Upscaling Pro, which sharpens lower-resolution content for optimal display on premium 8K screens, and AI Motion Enhance Pro, which is designed to reduce artifacts like ball distortion in live sports by automatically identifying the sport to tailor deep learning adjustments to the motion of balls, pucks, and similar objects.

Additionally, the introduction of the Real Depth Enhance Pro marks a significant advance. Utilizing AI, this system boosts detail in fast-moving scenes by more precisely adjusting the mini-LED backlight zones. This suite of technologies exemplifies the processor's role in elevating picture quality to unprecedented levels, showcasing the potential of AI in transforming viewing experiences. Samsung also includes Auto HDR Remastering, which is intended to improve 4K color and contrast by using AI-based algorithms to generate brighter highlights in non-HDR content.

The QN900D TV series is available in 65- ($,5,000), 75- ($6,300), and 85-inch ($8,000) screen sizes.

DESIGN

Among its many strengths, the set's design stands out, enhanced by the external One Connect Box that expands TV placement options while reducing visible cable clutter. Offloading image processing and connections to an outboard box also enables the mini-LED LCD screen to be mounted flush against a wall with an optional thin-profile bracket.

The QN75QN900D cabinet design includes an ultra-thin bezel around the screen. This black trim border tends to blend in well with the picture, helping to create the illusion of an image almost floating in space. The screen itself is just 1.5 inches deep, 65 inches wide, and 37-inches tall (edge to edge).

Samsung includes a sleek metal and plastic pedestal stand for table-top placement, featuring a slim foot plate that sits a quarter inch above the surface and extends 4.5 inches in front of the screen. The design of the stand provides 2.5 inches of clearance between its base and the bottom edge of the TV to accommodate a soundbar. With an 11-inch depth from front to back, the stand will work with a broad selection of credenzas and home theater cabinets.

UNPACKING

For this review, we visited a Samsung facility where the QN75QN900D was set up for testing, which was done using our own test equipment and demo material.

When assembling a model with a screen size 75 inches or larger, it's a good idea to have at least two people set up the TV on the supplied pedestal stand or an optional wall bracket. The process is straightforward, thanks to pre-installed mounting posts on the back of the screen and corresponding slots on the stand, which comprises two parts that easily slide together via pin fasteners. Given the size of the 75-inch model reviewed, it's important to note that the screen may wobble slightly on the stand after a light push. The structure is generally secure, though caution is advised for anyone with young children or active pets.

The One Connect box, containing most of the display's circuitry and ports, measures 11.5 inches by 13 inches by 1.5 inches and connects to the panel with a proprietary connector. Samsung provides a short strap for attaching the box to the back of the stand and a silver cable that's about 8 feet long for positioning it to the side or beneath the display. This cable, which also carries power, should not be run inside walls to prevent fire hazards.

FEATURES

The Tizen 8.0 smart TV interface used in QN900D series TVs is enhanced by Samsung's Gen 3 8K processor for quicker, more user-friendly interactions. It supports voice control through Bixby or Alexa, with input from the remote's button-activated mic or the TV's far-field mics. Google Assistant devices can also connect. The updated interface features a Sub Tab row for personalized recommendations across "For You," "Live," and "Apps" categories. It offers a vast app library and integrates with smart home platforms via Samsung SmartThings and Apple AirPlay 2. An optional USB camera supports video conferencing and health apps.

The One Connect box provides four HDMI 2.1 ports, including an eARC/ARC port for audio setups, supporting up to 4K/120p HDR10, Variable Refresh Rate, FreeSync Premium Pro, and Auto Low Latency Mode. Additional connec-

At a Glance

- \+ Significantly brighter HDR peak luminance over 2023 models
- \+ Great gaming features
- \+ Attractive design with nearly invisible bezel
- \+ ATSC 3.0 over-the-air tuning
- \+ Attractive and snappy smart TV interface
- − Screen picks up room reflections when using stand
- − Continued dearth of native 8K content
- − Lacks codecs like VVC likely to be used with future 8K content
- − No Dolby Vision support

Price: $6,300

www.samsung.com

SAMSUNG 75" QN900D 8K QLED TV

tions include three USB 2.0 ports, EX-Link, antenna/cable for ATSC tuners, optical audio, LAN (Ethernet), RS-232, and a USB-C for an optional camera.

Samsung's Eco Remote, now dubbed the "SolarCell Remote," is a slim, wand-style controller with a built-in rechargeable battery. It features a small solar panel on the back for charging via sunlight or room light, as long as it's placed panel-side up. Users can also charge the remote via a USB-C cable. Navigation is facilitated by a large circular pad, with voice commands enabled through a mic button. The remote includes buttons for Amazon Prime Video, Disney+, Netflix, and Samsung TV Plus, along with standard controls for playback, volume, and channel selection.

The Samsung QN75QN900D has a built-in 90-watt (RMS) 6.2.4-channel sound system. It's designed to maximize audio quality in a slim body and uses AI to tailor the sound to the room's acoustics. The 2024 version introduces enhanced Q-Symphony, syncing sound from the TV with external wireless speakers and compatible Samsung Q-Symphony soundbars. This integration adds subwoofers and rear channels, and enriches the soundstage, especially with Dolby Atmos content, which makes the audio experience more immersive.

When using its internal speakers, the TV employs Samsung's Active Voice Amplifier and Adaptive Sound Pro+ to optimize dialogue clarity and background sound for the environment. Additional features include Bluetooth connectivity, Clear Dialogue enhancement, and support for Dolby Digital Plus, Dolby Atmos, and Dolby 5.1 decoding. DTS codecs are not supported natively on the TV platform.

Other audio features include Multiroom Link, Moving Sound Pro (for object-tracking sound), SpaceFit Sound, Sound Mirroring, Sound Optimizer Pro Surround Sound, and Voice Guide.

PERFORMANCE

This TV supports High Dynamic Range (HDR) content, including HDR10, HDR10+ (Adaptive), and HLG profiles, but lacks Dolby Vision compatibility. Dolby Vision content defaults to HDR10 mode on Samsung sets. The differences between Dolby Vision and HDR10 are subtle, and most viewers won't notice anything is missing. If you want a full dynamic metadata HDR experience, you can look for movies that support HDR10+, but again, the differences with HDR10 are not extreme.

Measurements were taken using a Portrait Displays C6-HDR colorimeter, Murideo Six-G test-pattern generator, and the latest version of Portrait Displays Calman software. We thank the folks at Portrait Displays who make Calman software for providing essential resources that enrich Sound & Vision TV reviews.

In Filmmaker Mode, our measurements showed HDR10 peak luminance surpassing 2365 nits using a 10% D65 white window test pattern. The TV, featuring 1,344 local dimming zones managing thousands of mini-LED backlights, delivered exceptional contrast performance for an LCD-based display.

However, compared with Samsung's 2024 flagship QN90D 8K Neo QLED model, some shadow detail was lost, notably in challenging scenes such as the evil wizard attack in *Harry Potter & the Deathly Hallows Part 2*.

In low-brightness scenes–during the opening credits of *The Martian* on UHD Blu-ray, for example–some star details were lost and brighter scenes exhibited slight haloing around stars, as seen in the Spears & Munsil *Ultra UHD Benchmark* test disc. This effect was less pronounced than in Samsung's 2024 QN90D 4K models but comparable to the 2024 65S95D 4K Quantum OLED model. If deep blacks and minimal blooming are key for you, consider OLED options like Samsung's 2023 4K S95C Quantum OLED or OLED TVs from Sony and LG, though this may mean sacrificing some of the QN900D's peak brightness.

This year, Samsung introduced its Auto HDR Remastering feature, which uses AI-based algorithms to enhance non-HDR content by boosting brightness cues to simulate bright 4K color and contrast. Despite the potential for brighter highlights and details, we found that most SDR content appeared more natural without this feature activated.

The 75QN900D excelled at displaying the professional DCI-P3 wide color gamut used by Hollywood studios when mastering movies in HDR. The TV covered 91.73% of the 1931 CIE xy axis and 93.95% of the CIE 1976 uv coordinates, surpassing the Ultra HD Alliance's "premium UHD TV" threshold of 90%; alliance members include content creators and electronics manufacturers.

Measured HDR P3 color gamut coverage using Portrait Displays HDR evaluation workflow. Measurements taken with Portrait Displays Calman software.

Like last year, Samsung provides the option of using static or dynamic tone mapping for managing color presentation and detail in out-of-range shades. While the feature is effective, it can be overly intense for some content, as the TV accurately reproduces the most common P3 colors. In Filmmaker Mode, static tone mapping is activated automatically to ensure colors remain vibrant (as intended by the director). Samsung's dynamic tone mapping adds a realistic overall appearance where peak color brightness begins to roll off.

Watching the Ultra HD Blu-ray of BBC's *Blue Planet II* in Filmmaker Mode displayed the colors of reef fish as brilliantly rich and

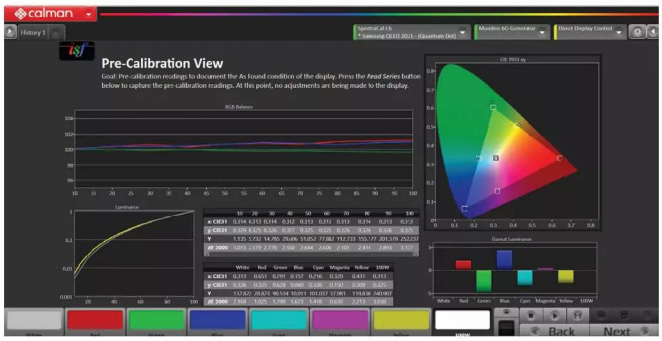
Specs

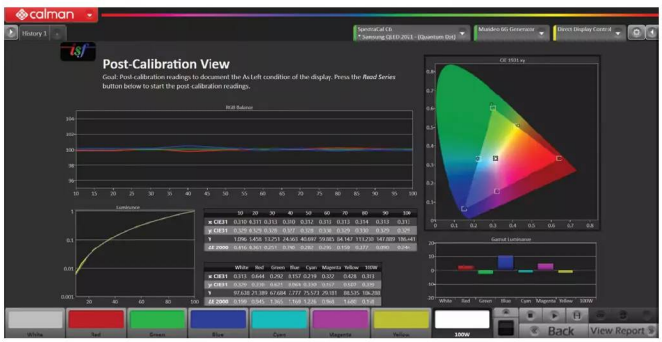
DIMENSIONS

TV with Stand: 65.2 x 40.1 x 11.2 (WxHxD)
One Connect Box: 14.2 x 1.3 x 13 (WxHxD)

WEIGHT

TV with Stand (pounds): 87.7
TV without Stand (pounds): 66.7
VIDEO INPUTS: 4X HDMI 2.1 (with eARC)
AUDIO: 6.2.4 Ch, Dolby Atmos, OTS+, Q-Symphony, Adaptive Sound Pro





well saturated. Their natural vibrancy stood out amidst bright (HDR) flashes from sunlight penetrating the clear water.

Pre- and post-calibration views showing SDR in Filmmaker Mode from measurements taken with Portrait Displays Calman software.

Standard dynamic range (SDR) images were also nicely bright and accurate after a slight adjustment for gamma and white point.

QN900D series TVs provide various motion processing options to enhance clarity in fast-moving content and reduce judder in camera pans, though these features are automatically disabled in Filmmaker Mode. For gamers, the set supports inputs up to 144 Hz and the panel itself offers a native 240-Hz refresh rate.

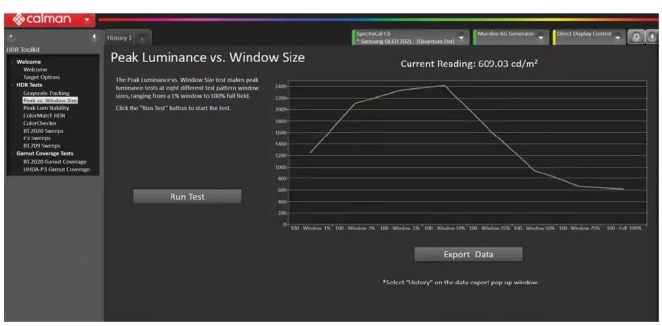
GAMING

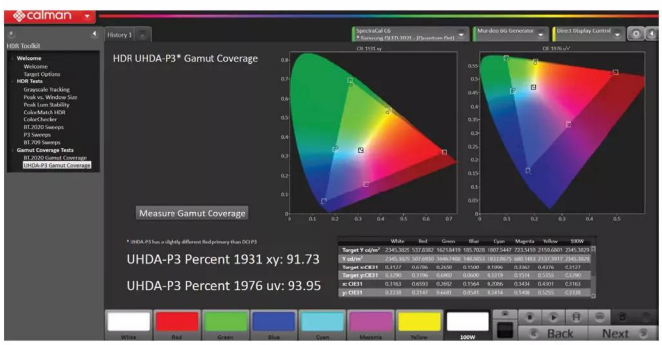
The QN75QN900D supported fast gaming, with an input lag of 3.8ms for both 1080/60p and 4K/60p signals across its four HDMI ports. This can automatically activate with ALLM using the new AI Auto Game Mode.

The AI Auto Game Mode stood out as one of the QN900D's significant new AI features. Samsung developed algorithms for this mode that eliminate the inconvenience of manually adjusting picture quality and sound modes for specific game titles, which simplifies gaming setup by automatically optimizing TV settings for various gaming genres based on the incoming title signal.

In "Auto" mode, AI detects the game being played and adjusts settings accordingly to streamline the gaming experience–for instance, activating "Sports" mode for a soccer game or "FPS" settings for a first-person shooter.

If you primarily play one game genre, you can manually select the specific setting and disable "Auto" mode. With "Auto" mode active, connecting a gaming console via HDMI triggers the AI Auto Game Mode. Once the game begins, the AI engine automatically adjusts to the optimal picture and sound settings.





AUDIO

The TV's internal speakers delivered clear dialogue and a somewhat wide, dispersed sound field for music. But like any modern TV, the flat-panel design limits what can be done with built-in audio. Voices were noticeably directional, with sound obviously emanating from behind the screen, as compared with a home theater setup with multichannel speakers placed in and around the listening area. Bass tones of the on-board system were somewhat deep for a TV, but lacked the dynamics and punch afforded by a stand-alone subwoofer.

We didn't have access to a Q-Symphony-compatible soundbar, so we were unable to conduct listening tests that integrated the TV's speakers with a soundbar. However, we have every reason to believe performance will be as excellent as last year's Q-Symphony feature, and substantially better than the TV's own speaker system.

The QN900D is pictured here with Samsung's Q990D soundbar.

CONCLUSION

Samsung's 75-inch QN75QN900D 8K Neo QLED Mini-LED TV stands out as a superior home theater display featuring an internal ATSC 3.0 NextGen TV tuner–something you don't get in Samsung's 2024 4K UHD TVs. This addition may become increasingly important as U.S. broadcasters transition from ATSC 1.0, expanding content resolutions and other capabilities offered by the emerging hybrid over-the-air/internet-based NextGen TV standard.

The QN75QN900D makes this flagship series much brighter. But, its color gamut doesn't match the new Samsung S95D Quantum OLED series. It still beats the 90% DCI-P3 standard for premium UHD TVs. It offers an impressive array of features and automatic settings tailored for advanced gamers. If you can afford this top-tier 8K model, you're unlikely to be disappointed. It stands out as one of the premier 8K TVs of 2024, notably as one of the few new 8K UHD models released that year.

The higher 8K resolution comes at a premium, but prices are expected to drop during promotional periods throughout the year. Early adopters and affluent gamers will likely appreciate the impressively bright, upscaled 4K HDR images this TV produces. However, its value proposition remains subject to discussion and will depend on the intended use. This is not the TV you buy just to watch HD on cable.

The Verdict

Samsung's QN75QN900D Neo QLED 8K TV impresses with bright HDR, smart features, and an AI game mode, offering stunning visuals from 4K and HD sources. Its speed and responsiveness make it a top choice for gaming, appealing to those willing to invest in premium 8K technology.

WiiM AMP

Value-Priced Multi-Room Audio

By Barb Gonzalez

RATING

PERFORMANCE ★★★★½

BUILD QUALITY ★★★★★

ERGONOMICS ★★★★½

VALUE ★★★★★

MANY OF us use inexpensive smart speakers throughout our homes to play music and control everything from lights to microwaves and washing machines. Devices like the Amazon Echo are great at controlling smart devices along with other more capable smart speakers and amps, but they don't typically deliver a great listening experience on their own. To achieve multiroom capability and rich, full-bodied sound–something on par with what you would expect from a good pair of stereo speakers–you have to spend quite a bit more, which means looking at systems from companies like Sonos or Bluesound.

Or, you could set up a system using existing speakers and one of the many integrated streaming amps that have become available in recent years at prices across the board.

The WiiM Amp is an affordable and highly capable example of a "smart amp" that streams music to one or several speakers around the house. It is similar in concept to the Sonos Amp but sells for half the price and doesn't limit you to speakers designed to work only in a proprietary (such as Sonos).

The amp is about as streamlined as you can get with only one knob and a row of LEDs on its front panel. Everything can be controlled using the WiiM Home App (for iPhone or Android), or you can use the supplied voice remote to adjust volume and control playback, which works fine as long as you don't need to know details about the music that's streaming because the Wiim Amp has no display. The remote's built-in microphone allows the amp to also function as an Alexa-compatible device capable of controlling compatible smart-home devices.

The WiiM amp sets the bar as the value leader among a new breed of smart streaming integrated amplifiers.

There are many similarities with Sonos in the way the Wiim Home App works. In addition to being able to stream directly from the popular music services such as Amazon Music, Tidal, Deezer, Napster, SoundCloud, and

Qobuz, you can stream music from a computer or NAS drive. You can also use Alexa, Google Assistant, or Siri voice commands to find and play specific songs, albums, artists, and playlists or adjust volume and play/pause or skip tracks. You can also use AirPlay to stream music from phones, computers, and other sources to Apple devices, such as a HomePod or Apple TV, or use Bluetooth to stream to headphones; wired listening isn't possible because the Wiim Amp doesn't have a headphone jack.

The amp can handle high-resolution audio up to 24-bit/192kHz and is compatible with most audio formats but only plays at that quality level when (passive) speakers are wired directly to its speaker-output terminals. It lacks Bluetooth aptX, so streaming to speakers wirelessly also cannot achieve that high a resolution.

Still, the Wiim Amp costs hundreds of dollars less than the competition and has more capabilities and features than other integrated streaming amps. For example, the Bose Music Amplifier ($699) lacks a remote and an HDMI port and provides direct access to a limited number of music services and limited support for hi-res audio formats.

FEATURES

Despite its competitive price, the WiiM Amp is loaded with features. It is, first and foremost, an amp. It has speaker terminals, as noted, and is rated to deliver 60 watts/channel into 8 ohms and 120 watts/channel into 4 ohms. That's enough to make most bookshelf speakers sing or to properly power a pair of small to medium-sized towers. Its ability to double output at 4 ohms is also encouraging and characteristic of a good design. The amp itself uses class-D technology and is very efficient, which results in low heat output and allows for a compact enclosure.

The amp acts as both a receiver and transmitter for Bluetooth and AirPlay, allowing streaming from mobile devices and computers and direct connection to Bluetooth headphones and speakers for convenient wireless audio enjoyment. It also supports AirPlay for sending audio wirelessly to compatible speakers and devices in different rooms.

As mentioned, the WiiM app is the central control hub for the amp, supporting an extensive array of music services, including Amazon Music, BBC Radio, Calm Radio, Deezer, Napster, Pandora, QQMusic, Qobuz, Radio Paradise, SoundCloud, SoundMachine, Spotify, Tidal, TuneIn, iHeartRadio, and vTuner. This broad compatibility ensures access to a wide variety of music, both popular and niche, without being restricted to a particular ecosystem. The app also functions as a media server when connected to a network music library, indexing downloaded music for easy management and playback directly from a computer or NAS drive. The app's interface facilitates straightforward navigation through the play queue and other music selections, with easy access to audio settings and preferences to personalize the sound.

In addition to extensive service support, the WiiM app includes voice command functionality through integration with Alexa, Google Assistant, and Apple Siri, enhancing convenience with hands-free control over music playback and volume adjustments. With its comprehensive features and intuitive controls, the WiiM app significantly augments the functionality and user experience of the WiiM Amp.

The amp can be connected to a TV via its HDMI eARC port for high-fidelity stereo sound and reproduce low-frequency effects when connected to a subwoofer via its sub output. Additional connections include analog stereo RCA inputs for connecting a turntable or CD player and an optical input for other digital devices like DVD players.

Unlike many streaming amps that offer limited tone control, the WiiM Amp features an adjustable 10-band graphic equalizer with presets for 24 music types and a parametric equalizer for more precise control over four frequency bands. Each source retains its equalizer settings, allowing for quick adjustments by tapping the three dots next to the song title and selecting the desired EQ from a dropdown menu.

The amp's ability to auto-detect a connected subwoofer and quickly disable it via a toggle in the app is particularly useful during late-night movie sessions when rumbling bass might be intrusive. The amp can also function as an alarm, with the app allowing you to wake up to specific playlists or tracks at a predetermined volume. A one-time alarm or recurring daily schedule can be set, and a sleep timer is available for automatically turning off the amp and TV after a specified duration.

Users can assign their most frequently listened-to music to

At a Glance

- ➕ Works well with Alexa, Google Assistant, and Siri
- ➕ Personalization to change Equalizer settings for each input.
- ➕ Can input/output Bluetooth and AirPlay
- ➕ Connect to the passive speakers you may already own.
- ➖ No front display, so I can't see the input or what song is playing
- ➖ WiiM app could be easier to navigate with fewer clicks/taps.
- ➖ No headphone jack.
- ➖ Doesn't have Bluetooth apt-X for streaming hi-res audio.

Price: $299

one of 12 presets, with the four most-used presets easily accessible by pressing a button on the remote.

SETUP AND FIRST IMPRESSIONS

The setup process was as elegant and simple as the lines of the WiiM Amp itself. Its brushed aluminum is a nod to Apple's Mac Studio design.

The first step was downloading the WiiM app on my iPhone and connecting to the WiiM Amp. There is no power button, so the speakers have to be connected to the amp before you plug it. This makes the unit discoverable. It took a couple of tries where I had to press the knob on the front of the amp to put it into pairing mode, but I succeeded relatively quickly.

Without a display on the front of the amp, the app is essential for setting up the amp, music services, and preferences. Signing into many services takes time, but setup was otherwise simple. From there, you can manage the services so only the ones you're subscribed to appear on the screen. Finally, voice commands can be set up by connecting to Alexa, Google Assistant, and Apple Siri.

The WiiM Amp has a global search function that shows results across most music services and your music library; you can add selections from the search to your library or playlist.

The WiiM app is also essential for seeing what's playing and navigating the play queue and other music choices. Still, there was a bit of a learning curve, making it harder to use than other apps, such as the BluOS app. After downloading it to my iPhone 15 Pro Max, I had to search the screens to find where to accomplish basic tasks. Most actions required two clicks to get to where I wanted.

VOICE CONTROL

Most streaming devices have issues with voice control. However, connecting the WiiM Amp to Alexa, Google Home, and Apple Home was seamless and all were able to bring up specific playlists, with Siri offering songs and playlists in Apple Music. Playback commands were refreshingly responsive! Using a device that does not make you reword or repeat commands is rare, and the WiiM Amp compelled me to use voice controls.

Beyond music, the mic on the remote control turns the WiiM Amp into a (much better sounding) Amazon Echo smart speaker that uses voice commands to turn on lights, opens blinds, locks doors, and so on. Again, it performed without a hitch.

Specs

DIMENSIONS: 7.48" x 7.48" x 2.48"
POWER: 120 Watts/channel at 4 ohms; 60 Watts/Channel at 8 ohms
SNR: 98dB
THD+N: 0.002% (-92 dB)
AUDIO OUTPUT: Stereo PCM only
AUDIO FORMATS: MP3, AAC, ALAC, APE, FLAC, AIFF, WAV, WMA, OGG
EQUALIZER: Preset, 10-band Graphic EQ, 4-band parametric EQ
NETWORK: IEEE 802.11 b/g/n/ac Dual Band, 10/100 Mbps LAN
BLUETOOTH: BT 5.1
STREAMING PROTOCOLS: AirPlay 2, Chromecast, Spotify Connect, TIDAL Connect, Alexa Cast, DLNA

PERFORMANCE

Overall, the WiiM Amp did what it was supposed to do. It is easily set up and streamed to Amazon Echo, Apple Home, and Google Nest speakers. I was quickly up and running as I added my favorite playlists and artists to the presets.

The icon navigation bar at the bottom of the app screen is handy but it disappears when the current song is playing. The full-screen view is where you access the drop-down menu to add the song to a library or playlist or open the equalizer. It's also the only place to see what's in your play queue by tapping a little icon next to the volume control. The queue cleared as soon as I went to another playlist or song. It took me a while to remember that I had to first click on the device icon and then the settings "gear" to access the amp's many options, such as turning the subwoofer on or off, setting the alarm clock, turning the LEDs on the front of the amp on or off, and choosing the audio output–speakers, AirPlay, or Bluetooth.

The browse icon brings up a screen with favorites, My Music (which includes songs downloaded to the phone), a convenient recently played list, a music share option for your DLNA library, the music services you set up, and any sources connected to the amp. The Device menu shows what's playing and provides a gear icon to access all of the amp's controls as well as a link for playing music over multiple WiiM-connected speakers.

I began testing by watching the movie Gran Turismo on Netflix. First, I chose the Movies preset in the EQ and connected a subwoofer. The WiiM Amp did a decent job creating the rumbling of the race cars and other more subtle effects, though it was plain stereo with no processing to simulate surround sound. Even so, dialogue clarity was incredible.

When watching most movies, I usually boost the dialogue to compensate for sound mixes that drown out voices. The Vocal Boost preset on the Wiim app

worked better than any other dialogue booster I've used: Sound effects were a bit muted, but could still be heard, and dialogue was crystal clear.

However, the WiiM Amp is at its best when streaming music. It shines by making it convenient to control what tunes you want to listen to and where you listen to them. I connected the small but mighty amp to my floor-standing Definitive Technology speakers and heard no distortion when I turned up the volume to ear-piercing levels.

Still, to my ears, the amp lacks the musicality and clarity of other (albeit more expensive) hi-res streaming amps, like the SVS Prime Wireless SoundBase. But it is more than adequate for casual listening–I heard no tinny highs or distorted drums during my listening tests.

When listening for extended periods, I had the option of customizing the sound using the amp's 10-band equalizer and parametric EQ, but using the latter properly requires a better understanding of audio mixing than I possess. What I do know is being able to set a proper subwoofer crossover and apply parametric EQ based on measurements will improve the sound quality in a given room. But having an equalizer also lets you tune the sound to taste if that is your preference. I could tinker with the parameters at different bandwidths to bring out specific instruments or vocals until I liked what I heard. For example, I like the organ in "Roundabout" by the band Yes. I guessed that the organ would be a mid-high frequency and played with the EQ settings until I heard the organ sound the way I wanted. The EQ also works with the audio from a TV.

There was no lag in sound from the TV, and the lip synchronization was perfect.

MQA-encoded music streamed over Tidal was solid. Bad Bunny's songs sounded well balanced when I engaged the Hip Hop EQ preset. However, microdynamics and separation of sounds weren't as good as I've heard on some higher-priced integrated amps.

Ultimately, after streaming Joni Mitchell's "Both Sides Now" in high-res formats over Amazon Music and Tidal (MQA), as good as it sounded, I never experienced "hair on my arms standing up" or that "reach-into-your-soul" level of musicality you get out of a high-end stereo.

CONCLUSION

The WiiM Amp is a remarkably capable multiroom streaming amplifier that delivers robust features at a competitive price, including the ability to tailor the sound for an enhanced listening experience. While it may not match the exquisite musicality of higher-priced alternatives, it compensates with versatility and ease of use, making it an excellent choice for everyday listening and smart-home integration.

The WiiM Amp offers a compelling blend of performance, features. Whether streaming the latest hits or enhancing your TV's sound, the WiiM Amp proves that high-quality audio and a rich feature set don't have to come at a premium price.

If you aren't going to sit down and savor music like an audiophile might, this is a great amp. And if you want to fine-tune your system for optimal playback of music, you'll be happy if you take the time to adjust the EQ settings. This device is not just an amplifier: it's a gateway to a rich, convenient, and connected audio experience in your home that provides another way to control all of your connected smart devices.

The Verdict

The reasonably priced WiiM Amp is the perfect device to leverage a house full of speakers to create a multi-room sound system. You may have Alexa, Google, or Apple HomePods. Or, passive speakers connected to other WiiM devices. This amp makes it easy to control streaming from the most popular music services anywhere in your home.

ATARI GAMESTATION PRO RETRO GAME CONSOLE

Classic Appeal & Modern Features

By John Sciacca

RATING

PERFORMANCE ★★★★½

BUILD QUALITY ★★★★½

ERGONOMICS ★★★★½

VALUE ★★★★★★

HERE'S THE TL/DR: this review is mainly for Gen-Xers. If your first gaming console was a Nintendo Entertainment System (NES) or Sega Genesis, or a PlayStation or XBox, then you'll probably do better just to move on. But for those of us who grew up in the Atari Generation, when the home gaming market was born and really started to take off, this box is a time machine that will transport you to simpler times when all you needed to worry about was a stick and button!

I was born in 1970 and grew up with the Atari 2600, also known as the VCS, or Video Computer System. From the 2600 I graduated to the Atari 400, a rudimentary computer that could do some basic computing, but was really just an improved 8-bit gaming experience. I loved that 2600. *Loved it*.

This retro Atari console skips the '80s styling but connects with HDMI and comes with plenty of games.

I first saw the Atari Gamestation Pro on display at My Arcade Gaming's booth at CES last January and immediately wanted it. In fact, I offered to buy their display model on the spot. (They declined and told me to wait.) So, when

I saw the system at my Costco (selling for $79 instead of $99) I snatched it up.

And from there, I went down a rabbit hole to see just what the Atari Gamestation Pro could do.

FEATURES

The original Atari VCS was bundled with two joystick controllers, a pair of paddle controllers, and one game cartridge: *Combat*. It launched in September 1977 and sold for $199, which is equivalent to over $1,000 in today's inflation-adjusted dollars.

The Atari Gamestation Pro console integrates over 200 licensed titles created for the Atari 2600 VCS, Atari 5200 SuperSystem, Atari 7800 ProSystem, and Atari Arcade as well as other "bonus titles," and includes two 2.4-GHz wireless controllers inspired by the original iconic Atari joysticks but with a few new tricks.

Of the 200-plus included games there are 139 Atari titles, including 82 Atari 2600 games, seven Atari 5200 games, 10 Atari 7800 games, 39 Atari Arcade games, and 63 (8- and 16-bit) arcade bonus titles. Included are 2600 favorites like *Adventure*, *Asteroids*, *Breakout*, *Combat*, *Indy 500*, *Warlords*, *Yars Revenge*, and many more. Atari Arcade titles include classics like *Asteroids/Deluxe*, *Food Fight*, *Lunar Lander*, *Millipede*, *Missile Command*, and *Tempest*.

Of course, while 201 games is a lot, there are loads of classic games that aren't included. There's no *Defender*, no *Space Invaders*, no *Pac Man*, no *Pitfall*. There isn't even the disaster-cart *ET*, which was rumored to have caused Atari to go out of business. But, before you freak out, read on; there's a way.

UNBOXING AND FIRST IMPRESSIONS

In the box is everything you need to be up and gaming in minutes. Beyond the console and two controllers, you get an HDMI cable, a USB-C-to-USB adapter for power, and eight AA batteries to power the controllers. While there is no USB power supply, the USB connection on most displays should be enough to do the trick.

While the controller is "inspired by" and reminiscent of the original 2600 joystick, it has several added features. Beyond the controller's original button located in the upper-left, there is also a B button mounted on top of the stick, and a C trigger button on the front of the stick. Below the controller are three small Home, Select, and Start buttons. Additionally, there is a small control knob in the upper right for use with paddle games like *Breakout* and *Pong*. On the front of the controller is an on/off slider, a Menu button, and a USB-C port for connecting to one of the two USB-C ports on the front of the chassis, which can help cut down on controller latency (cables not included).

The chassis itself is pretty small, measuring 7 3/16 x 4 1/4 x 1 (w x d x h) and weighs about as much as a paperback book. It has two top-mounted buttons, one for power and one for Home, and on the left side of the box is a slot for a Micro SD memory card. On the front are the two USB-C ports for connecting the controllers. When the chassis and controllers are powered on, a ring of rainbow LED light glows around the buttons and base of the controller. Pressing and holding the Menu button on the back of the controller allows you to cycle through different light options, but you can't turn them off.

The main screen loads in 16:9, and you are presented with Featured Games (all the Atari titles), Bonus Games, and Settings. Along the bottom of the screen it shows that A is for selecting, B takes you back, and C toggles the music on/off.

Under Settings, you can choose the aspect ratio–this is an Atari, so keep it in the original 4:3!–select some bezel art to fill in the sides of the screen, add scan lines for a retro CRT look, get a controller overview, or select About, which provides a QR code that takes you to My Arcade's website.

Going into the Featured games, you can browse Atari titles by All, 2600, 5200, 7800, Arcade, Paddle, Multiplayer, and Recent. When you select a title, you see the original cover art with a game screenshot and get a small synopsis in addition to a graphic of the buttons used during gameplay.

With some games having a lot of variations–*Asteroids* has 66 for example–it can be helpful to look up the original game play manual. Fortunately, you can find them all for viewing or download at archive.org.

At a Glance

- \+ Nice selection of games
- \+ Everything needed to play is in the box
- \+ Ability to upgrade controllers/games
- – Missing some key titles
- – Awkward controller button layout
- – Questionable longevity of controllers

Price: $99

www.myarcadegaming.com

ATARI GAMESTATION PRO RETRO GAME CONSOLE

The Bonus games are divided into All, 8-bit, 16-bit, Arcade, Multiplayer, and Recent. Selecting a title shows a screenshot, but gives no description of the game or how to play.

PERFORMANCE

I never had any issues with the console or gameplay. It always turned on, allowed me to select/play, and then exit and start new games without issue.

I immediately jumped into *Combat* because it's a game I had logged hundreds of hours of stick time playing years ago. It was everything I remembered, from the sounds of the rumbling tank treads, to the boop-boop-boop of bouncing bullets, to the crunch and spin of a hit tank. It was amazing how much fun I had playing this simple game with another person.

From there I just raced through games I knew from my youth: *Air-Sea Battle*, *Asteroids*, *Missile Command*, *Outlaw*, *Video Olympics* (*Pong*), *Super Breakout*... Everything was just as I remembered.

I never owned the original *Indy 500* because it came packed with special "driving" controllers and was famous for being the most expensive cart you could buy. So, it was great to finally be able to play this game, albeit with a joystick and not the steering control.

Obviously, the graphics are abysmal by even 30-year-old standards, but that's not the point. What they lack in slick visuals they make up for in the sheer fun of simple gameplay. Honestly, the best fun was in sharing these games with my daughters, Lauryn (17) and Audrey (7). The learning curve is so low, I could explain the premise and we'd be playing in seconds. Lauryn and I love battling with the tanks in *Combat* and blasting each other in *Outlaw*, and after she watched *Ready Player One* she was eager to play *Adventure* and unlock the Easter Egg. Audrey loves *Air-Sea Battle*, *Bowling*, *Maze Craze*, and *Sky Diver*. And when they say, "Hey, dad, do you want to go play some Atari?" sigh...

The graphics and game improvements are obvious as you step up from 2600 to 5200 to 7800 to Arcade. Centipede is offered on all four, and the progression is notable. I loved playing *Food Fight* in the arcade – do you remember the "Instant Replay" feature? Still here! – and it's still a blast to play. And those vector graphics that early console games couldn't produce are here and razor sharp in the arcade versions of *Asteroids*, *Lunar Lander*, *Tempest*, and *Red Baron*. And it's so great to just hit select whenever you want to add more fuel to your *Lunar Lander* game!

I discovered an Atari Arcade game – *Major Havoc* – I'd never heard of which is a ton of fun to play, albeit fairly difficult. It was also fun to revisit *I, Robot*, a game I remember playing in the arcades and known for being the first game rendered entirely with real-time, flat-shaded, 3D polygons. (It also features the optional *Doodle City* if you prefer just drawing.)

Not all games held up that well, and many we jumped in and out of several that we'll never play again. For example, the arcade *Fire Truck* is almost unplayably hard with its clunky control, and arcade *Atari Baseball* is also way faster and harder than I remember.

I haven't spent a lot of time with the Bonus games, and only one of them – a fighter called *Mighty Warriors* – looked familiar. We have spent a bit of time with *Snow Board Championship*, which is a straightforward game of racing down a moment course.

The controller did take a bit of getting used to. For basic 2600/7800 games only requiring the single A-button, it was mostly fine, though sometimes it seemed to be a little unresponsive. And it doesn't have the same feel or travel of an original 2600 controller. But other games that required the B and/or C-button (like the arcade version of Missile Command where you use all three), the button layout was a bit awkward, with the stick not really big enough to be comfortable to hold where you could press the top and trigger at the same time. And the three buttons below the controller are awkwardly placed, and on more than one occasion I accidentally hit the Home button and exited out of a game.

The controller knob has three sensitivity settings, but we couldn't get it to respond well enough to be usable. It lagged just enough to make games like Breakout maddeningly unplayable and we'd all but given up on playing paddle games. Then I saw a tip that suggested hardwiring

Specs

- Atari 2600, 5200, 7800, and Arcade games on a single platform.
- Includes 201 officially licensed Atari classics and other bonus titles.
- Dual 2.4 GHz Joysticks with integrated paddles with 3 sensitivity settings
- Game save options: 2 save slots via on-board memory and 2 save slots via Micro SD Card (not included).
- Console powered by USB-C with two additional USB-C jacks for controllers.
- Console connects via HDMI to TV.

the controllers and putting the TV into Game mode. Game changer! This took some games from unplayable to totally awesome. After switching to Game mode and hard-wiring cable, I was able to go from less than 50 points in Circus Atari to over 3000 on the first attempt!

Like the original Atari paddle controller, the control knob has "stops" at the far left and right, instead of just being a free spinner. This means that the knob isn't usable for games like Tempest or Indy 500 where the free spinner would have been way better. (You play both of those games using the joystick.) Also, I'm not sure there is a way to connect four controllers to play four-person Warlords as you could on the original 2600.

When playing a game, pressing Menu brings up a screen that gives different options. In 2600 games, you can access the TV Type (Color or BW, though this didn't seem to function), Game Difficulty (A/B), Paddle Sensitivity (low, medium, high), and the ability to save/load a game, with four different save/load slots.

Also, whether it was overly aggressive gameplay or just poor construction, one stick did break within the first week of play, where it just no longer responded to up.

My advice is to get a couple of 10-foot-long USB C-to-C cables and hardwire them. Or, better yet, you can use a third-party controller like from Xbox. (New Xbox Elite controllers take a USB C connection, but my original Xbox One S controllers have a micro-USB which needed about $20 for adapters and longer cables.) The Xbox controller has buttons that map to ALL the included joystick buttons, letting you access menus, select/start games, and enter "coins" for arcade titles, so it is an excellent one-to-one replacement. (It doesn't work for any games that require the paddle, however.)

Now, say you want to play games that aren't included.

Grab a microSD and format it as exFAT, then create a folder titled "games". ROM downloads are widely available on the Internet and the Gamestation Pro will not only play Atari 2600 (.a26), 5200 (.a52), and 7800 (.a78) ROMs, it will also play Nintendo NES (.nes), Sega Genesis (.bin) and arcade games via a MAME (Multiple Arcade Machine Emulator) emulator!

Now, downloading ROMs can be a legal gray area–or just straight-up, illegal copyright infringement–so do your own research, proceed with caution, and don't take this as an endorsement or encouragement of the practice. (One site, myabandonware.com, claims its downloads are legal, "but we do not take any responsibility for downloads considered illegal in your country.")

Also note that not all games are compatible with the button mapping of the controller. For example, some 7800 games (Pete Rose Baseball for one) requires using the console's original Reset button to start, and there is no way to start them. However, most games–especially the simpler "stick and button" games–all work perfectly.

CONCLUSION

I don't think I could put a better bow on this review than what David Cox, chief revenue officer at My Arcade, said. "This isn't just a gaming console; it's a journey back in time, wrapped in the convenience of the present."

Being able to relive these classic titles with my kids has been a fantastic experience. And with many of them being just stick-and-button, the learning curve is low enough for anyone to start playing!

Today, when everyone is so busy, being able to pop down and play a few quick games in 30 minutes is fun and refreshing compared to the 40+ hour slogs and complex button combos and gameplay many modern games require, and that has been fantastic. Highly recommended.

The Verdict

For Gen X-ers, the My Arcade Atari Gamestation Pro is a blast-from-the-past in an affordable package that allows you to relive some of your favorite games from childhood. Probably the best under $100 purchase I've made!

BENQ HT4550I PROJECTOR

AV Media Machine

By Andy Grimm

RATING

PERFORMANCE ★★★½☆

FEATURES ★★★★½

ERGONOMICS ★★★★☆

VALUE ★★★½☆

THE HOME theater projector market is undergoing a major transformation. Lamp-based projectors are being replaced by solid-state projectors. BenQ is a unique company in this market, primarily using 4LED technology instead of the single or multi-laser setups that are becoming more common.

BenQ recently introduced its first 4LED home theater projector, the BenQ HT4550i, which uses the new DLP 0.65-inch DMD from Texas Instruments to achieve a rated brightness of 3200 ANSI lumens. It also supports HDR10+ high dynamic range (HDR) and a host of other intriguing features. However, the most intriguing aspect of this projector is its price: $2,999.

This price point is significant because it is the traditional sweet spot for budget-conscious home theater enthusiasts. This price point has been dominated by bang-for-your-buck titans like the Epson 5000 series and Sony 1080p SXRD models of the past. BenQ clearly believes that its new HT4550i and 4LED system are up to competing at this level. I was eager to put this projector to the test.

This BenQ is great for a media room where movies, sports, and video games are all part of the home entertainment mix.

The HT4550i boasts several impressive features on paper. As noted, BenQ has employed the new, larger 0.65-inch DMD with XPR (eXpanded Pixel Resolution) technology, providing improved clarity and contrast over the existing 0.47-inch XPR DMD that most 4K DLP projectors have been based on. Like the 0.47-inch XPR DMD, it is a native 1920x1080 chipset that shifts four ways to deliver the required 8.3 million individually addressable pixels on screen for 4K. 4K DLP projectors have long been plagued by low native contrast, so a boost in this metric is a very welcome change.

The 4LED system is a marvel of technology. It features a single LED for each color—red, green, and blue—as well as a white LED to boost brightness. When used with the Wide Color Gamut filter, this system is rated to achieve the full DCI-P3 color gamut.

What impressed me most about the system is how it operates. Instead of using a color wheel, each LED is flashed independently up to 240 times per second when outputting 4K at 60Hz. In this mode, the individual color LEDs must flash once per subframe. It is truly amazing to think about the precision and timing involved with the 4LEDs flashing, the micromirror device moving, and the XPR pixel-shifting mechanism oscillating.

The HT4550i is sturdily built, yet compact, weighing in at almost 15 pounds in a black case that measures 16.5 x 5.3 x 12.3 inches (WxHxD). On the back are all the connections you

need. There's one HDMI 2.0b jack with eARC, an HDMI 2.1 input with 4K 120Hz support (downscaled to 1080p 120Hz), a mini-stereo audio output, an optical out, and two USB-A ports, one for service and one for use as a media reader. There are also RS-232 and LAN ports and a 12v trigger jack. Hidden under a cover is a third HDMI port used for the Android TV stick that is included.

BenQ surprisingly built a 5-watt single-driver speaker system into the HT4550i. It won't blow anyone away with its fidelity or output, but it is there if you need it in a pinch. 3D is also supported—not always a guarantee nowadays. Input lag is advertised at 17.9ms for 4K 60Hz and 5ms for 1080p 240Hz, which is low enough for all but the most serious gamers.

SETUP

To evaluate the HT4550i, I set it up in two environments: my dedicated dark room theater with a 110-inch 0.8-gain screen and my living room with a 110-inch Elite CineGrey 4D AT screen.

I attempted to use the high shelf in my theater, but the HT4550i has a 0% offset with the centerline at the bottom of the screen when shelf mounted; this means when it's mounted high on a shelf, it wants to project upward. If you have a lower, mid-level shelf or are willing to mount the projector on the ceiling, the 2D lens shift will do a good job of aligning the image without any digital correction. I settled for a temporary shelf behind the seating area for this evaluation.

> It did a good job reproducing most of *1917*, which is shot in somber tones with overcast light.

The focus and zoom rings on the top of the projector above and behind the lens are solid and rotate smoothly. The lens shift dials, on the other hand, spin rather loosely while the image shifts in a slightly diagonal direction when adjusting instead of being strictly on the horizontal or vertical planes. The front two feet spin and extend for any small pitch or roll adjustments needed. I did have issues getting a good uniform focus on my evaluation unit. I was only able to achieve a sharp focus on the left portion of the screen, meaning the middle and right side of the image was soft.

Though I did my best to improve screen uniformity, I wasn't able to get the whole screen as sharp as I've come to expect from 4K DLP. There was also a bit of smearing up and to the left around bright objects, slightly noticeable from seating distances.

I do wish BenQ had included an automatic motorized focus feature on the HT4550i. The GP500 has it at nearly half the price and it works very well—possibly even better than I can do when manually spinning a dial 10 feet away.

My small theater was a good match for the 1.15-1.5x zoom on the HT4550i, though this ratio is on the short side for larger spaces and lacks the range we're used to seeing on more premium home theater projectors.

The included remote is not one of my favorite projector remotes. BenQ made a remote that is half projector remote and half Android TV stick remote. For the Android TV portion of the remote you have everything you need apart from streaming app shortcuts. It's the projector side of the remote that is lacking. There are no shortcuts to display settings like gamma, brightness, or BenQ's hidden CinemaMaster menu. These shortcuts were on many of BenQ's previous remotes and made setup much faster. I found myself clicking a lot to go in and out of menus.

Booting up the projector led me to the now pretty standard Android TV setup process. This time though I had to sync the remote to the Android TV dongle, which worked and I had no issues controlling both devices, which is a bit odd to say since this is a review for a single device. The Android TV stick does perform

At a Glance

- \+ Vertical and horizontal lens shift
- \+ Very good pre- and post-calibration
- \+ 4LED means no laser speckle
- \+ Rich with features
- − Disappointing contrast performance
- − Lackluster sharpness and focus uniformity
- − Fan noise is loud at full brightness
- − WCG filter cuts light output, disables dynamic contrast

Price: $2,999

BENQ HT4550I PROJECTOR

reasonably well. It's not the snappiest of streaming devices, as I experienced a lag here and there, but, overall, I didn't have issues moving in and out of streaming apps.

BenQ offers a few choices for Light Source Mode: Normal, Custom, Eco, and SmartEco. For my evaluation, I primarily utilized SmartEco. There were two reasons for this. First, SmartEco is the only way to activate dynamic contrast, a must-have for this projector. Second, the fan noise. Setting the HT4550i to Normal or Custom increased the cooling fan speed, which was too loud for my liking. SmartEco still allows the projector to max out its brightness, but only when called on. This doesn't always result in the fans spinning to full speed, which limits the noise.

HD/SDR PERFORMANCE

Out of the box, the HT4550i's Cinema picture mode was incredibly well-balanced. BenQ advertises that each projector is independently calibrated at the factory, and I believe it. I'll get into the details in the Test Bench, but it is worth calling out that the measured gamma was right on target at 2.2, and an 11-point grayscale sweep averaged only 1.5 dE2000, skewing just a smidge blue. My screen is also a touch blue, so this projector arrives darn near calibrated out of the box. A CMS saturation sweep averaged 1.5dE, with everything shifting a bit toward blue as well. These results are fantastic for any projector in any class, and I congratulate BenQ on a job well done here.

Due to the phenomenal out-of-the-box performance, users should not fret about splurging for professional calibration. What about drift, you may ask? Well, BenQ has you covered here with built-in automatic color calibration that adjusts the LEDs as they age. I tested this out a bit. I turned the feature off and performed my calibration. I then turned it on and reran my tests, which were nearly an exact match. This gave me confidence in the built-in sensors being up to the task of maintaining the calibration.

Putting this calibration to the test while watching *The Edge of Tomorrow*, I found skin tones to be rich and well balanced; shadow detail was rendered very well. In dark scenes, I noticed the image is a bit washed out, but throughout most of the movie, I was pleased with the presentation. I played with the Local Contrast Enhancer and enjoyed the effect. It gave the appearance of a higher contrast projector, and I couldn't detect any clipped, dark or light details. I proceeded with the rest of my testing with the contrast enhancer set to Medium.

Specs

DIMENSIONS: (inches) 16 x 5.3 x 12.3 (WxHxD)
WEIGHT: (pounds) 14.6
VIDEO INPUTS: 2X HDMI 2.0
HDCP SUPPORT: Yes, Version 2.2
AUDIO OUTPUTS: 3.5mm analog headphone, optical digital (Toslink)
USB: 2x USB 2.0

Unfortunately, it was a common occurrence for images to appear washed-out in dark scenes. The HT4550i's native contrast ratio of 1200:1 and dynamic contrast ratio of 2600:1 made my favorite movie, *Gravity*, appear flat and muddy. When bright objects were on screen, such as the spacecraft or space station, the HT4550i could render good detail with a healthy depth. However, when the screen was mostly black, such as when astronaut Stone was cast into space, the black of space appeared more like a mid-to-dark gray. I also noticed the LED dimming in this scene, which was surprising given their limited impact on dynamic contrast. The dimming would likely go unnoticed by most viewers, but it is worth noting.

Sports on the HT4550i were a different story–they looked great. Color was rich and motion was smooth while I watched NFL football, NBA basketball, and golf. I measured about 1800 lumens in Cinema mode, which is bright enough to light up a decent screen with some extra in the tank for battling ambient light. Using the HT4550i with the 110-inch Elite screen, I had quite a fun time watching my favorite teams, so long as the lights in my living room weren't full blast.

One note about the HT4550i's rated ANSI lumens of 3200. While I did measure this output in the Bright picture mode, it was only when displaying a 100% window with a full white pattern and no menus being shown. In this state, the projector boosted the fans and dramatically increased fan speed. As soon as anything else was displayed, the projector dropped light output by 15% and leaned very green. I'm disappointed that BenQ rates their projector in this mode, as it is impossible to experience the projector outputting 3200 lumens unless you want to watch a white screen.

4K HDR

Choosing the best settings for HDR content was a bit of a challenge at first. When I chose either of the two available HDR10 picture modes–HDR10 and Filmmaker Mode–and enabled the Wide Color Gamut (WCG) filter, the SmartEco light mode wasn't available. The WCG filter also cut light output by 44% to where I was only getting 1000 lumens.

While I did measure 100% DCI-P3 coverage in this setup, reducing contrast and light output was the opposite of what I wanted for HDR. Instead, I elected to disengage the filter and go with 89% DCI-P3 coverage to preserve dynamic contrast and achieve 1800 lumens of brightness.

Despite not using the filter

the HT4550i produced vibrant colors in HDR. The BenQ had no trouble captivating my children while they watched *Angry Birds 2* and *Encanto*. The WCG filter only helps with extending green, so the blues, reds, and magentas in both of these films were accurate and impressive. Engaging the filter only rarely helped with green reproduction but, in all honesty, it was hard to tell after losing almost 45% of the light output. The extra light easily trumps the slight boost in greens.

My woes with dark scenes carried over to HDR. *1917* is a go-to movie of mine for evaluating black-level and HDR tone mapping. Halfway through the film, Lance Corporal Schofield awakes in a dark stairwell lit only by the moon. It is a scene with lots of subtle shadow detail and little highlights. Poor HDR tone mapping will compress this scene, even though it doesn't need to, crushing all shadow detail and resulting in a murky mess. The BenQ HT4550i was able to reproduce this scene without creating a murky mess due to its solid tone-mapping abilities. Leaving HDR Brightness at the default 0 setting, rendered most of the detail visible. If the HT4550i had better contrast, the onboard processing would likely render this scene incredibly well.

When not challenged by dark scenes, the HT4550i performed admirably. It did a good job reproducing most of *1917*, which is shot in somber tones with overcast light. Moving over to *Top Gun: Maverick*, the HT4550i outright excelled at handling this blockbuster. Skin tones were natural and the projector's default tone mapping settings and the Local Contrast Enhancer provided depth and accuracy.

When contrast wasn't overly challenged, the HT4550i made movie images shine. But for HDR, it wasn't always as easy. After tweaking a few settings, I rarely reached for the remote to fix something. I appreciated BenQ's new Local Contrast Enhancer feature, which made some scenes pop more than they otherwise would on a limited contrast display such as this. It may not have followed the director's intent, but my eyes enjoyed the effect.

MEDIA/LIVING ROOM

BenQ pitches the HT4550i as a home theater projector. Thus far, I am not sold due to its limited contrast performance. Not all is lost, though. When paired with the aforementioned Elite screen, the HT4550i delivered impressive results in my living room with the lights off and little to no ambient light to worry about. In this environment, with its light gray walls, my eyes were no longer anchored to the deep blacks of the ultra-dark decor of my theater. Here, I saw BenQ present its most appealing use case for the HT4550i. The gray tones previously trying to pass for black now looked, well...like dark gray! The impact on contrast was positive overall, making most content look richer and more three-dimensional.

Even so, I'd like to see a brighter mode for combatting ambient light when the projector is used in a media/living room. BenQ doesn't offer a mode for this. The Bright picture mode was too green, and all other modes peaked at 1800 lumens. Still, this is where the HT4550i shines. Pair it with a reasonably sized, not-too-low-gain ALR (ambient-light-rejecting) screen and enjoy movie night.

CONCLUSION

The BenQ HT4550i device embodies a blend of innovation and compromise. The projector's strengths are evident in its technological advancements, notably the 4LED light source offering bright, vibrant images and a long-lasting lifespan, a boon for any projector enthusiast. Its color accuracy, pre- and post-calibration, is impressive, rendering a spectrum of vivid yet natural colors, bringing to life both SDR and HDR content.

However, these positives are balanced by notable drawbacks. The limited contrast ratio, especially in darker scenes, is a significant disappointment. This shortfall results in less-than-optimal black levels, affecting the overall depth and immersion of the viewing experience. For sci-fi aficionados, the HT4550i will struggle to reproduce convincing content to keep them immersed. The issues with sharpness and focus uniformity further mar the viewing experience, especially for those at large field-of-view seating distances who need the full 4K experience.

Fan noise and a WCG filter that will likely go unused reduce its appeal. But its performance in media or living room environments with good light control flips the appeal equation in the other direction.

Overall, the BenQ HT4550i positions itself as a mixed bag. As a dedicated home theater projector, and even with its stellar calibration capabilities, it is a miss. I recommend looking elsewhere for a higher-contrast projector. Apart from its sharpness limitations, it offers a compelling solution as a media room projector.

The Verdict

The BenQ HT4550i takes a valiant swing at making a home theater but is held back by its limited contrast. Outstanding pre- and post-calibration performance, 2D lens shift, and an included Android TV streamer make it one of the easiest projectors to set up and use. While not a true home theater projector the HT4550i makes a strong case for a media room environment.

RUNNIN' INTO THE

What Tom Petty and The Heartbreakers achieved over their rightfully acclaimed multi-decade career stands as a benchmark for how to match universally appealing songwriting with uncompromising sound quality.

BY MIKE METTLER

TOM PETTY was going for broke because he had no other choice. He and his then-band Mudcrutch were running on fumes in their Gainesville, Florida home base—so, on April 1, 1974, they decided to head west in search of the last chance saloon of beckoning record deals. Though Mudcrutch made a brief go of it—their 1975 single on Shelter Records, "Depot Street," stood as a hard-promise signpost of what was to come—the band soon enough dissolved with a fizzle. Undeterred, Petty regrouped with two of his Mudcrutch brothers—lead guitarist Mike Campbell and keyboardist Benmont Tench—at the fore. With the addition of bassist Ron Blair and drummer Stan Lynch, Tom Petty and The Heartbreakers were born anew in 1976, ready to take on the world with renewed vigor.

Fast-forward 50 years on from that fateful, not-fooling April opening day into the here-and-now modern aural world wherein the rich, full sound palette and song-based heritage of Tom Petty and The Heartbreakers continue to permeate many corners of the popular music spectrum. Whether it's the jangly guitar stylings and multi-part vocal harmonizing on display in many a modern garage band, the accented focus on character-driven songwriting deployed by a score of Americana artists, or fully sanctioned tribute albums like *Petty Country*—a June 2024 release on Big Machine featuring household names like Chris Stapleton, Dolly Parton, George Strait, and Margo Price covering 20 of his best-loved songs—Tom Petty's artistic legacy carries ever onward. Though he sadly passed away at age 66 on October 2, 2017, just weeks after a final trio of triumphant shows at the Hollywood Bowl in his adopted hometown of Los Angeles to wrap up the band's 40th-anniversary tour, Petty's deep catalog continues to expand with carefully curated family-authorized posthumous releases.

Ever passionate about how his music sounded—first, in the analog era on vinyl, and later, by way of 5.1 and eventual Atmos mixes done by his longtime engineer Ryan Ulyate—Tom always knew he wanted to push the envelope every time he entered the studio. "We started out trying to make sounds that were fun," Tom told me well over a decade ago. "Mike and Ben and I are really record people. We lived with records a lot. We wanted to learn, from

GREAT WIDE OPEN

the outset, how to use the studio to do things that perhaps we couldn't do otherwise."

I had the privilege of interviewing Tom personally more than a few times over the years, and it's worth noting that it was no accident on my part that our one in-person sit-down took place on April 1, 2010, at his beach house in Malibu, California. This beautiful expanse overlooked Escondido Beach. Around 3 p.m. Pacific time that day, we adjourned to the open-space living room. I sat on a couch facing the sliding-glass doors just beyond the wood-paneled dining room that led to a beautifully finished deck overlooking the Pacific Ocean.

Tom perched in his favorite chair opposite me, his blonde hair cropped close and styled somewhat shorter than the shoulder-length locks he was mainly known for throughout his career. He also sported a neatly trimmed beard and wore the gradient shades he favored at the turn of the decade. Just a bit further back in the open room behind Tom's right shoulder resided a reference sound system, with a vintage Technics turntable and Krell preamp amongst the visible gear. "I can't get that Krell to be quiet enough in here when other people are talking," he admitted. "I gotta figure out a way to cut it back a bit."

When I reminded Tom of the importance of that crucial April 1 date, his face relaxed, and he was now fully present in the moment. He leaned forward in his chair, nodded slowly a few times at the memory, and said, "That's right. Yeah, we did in '74. We set out for L.A. and never went back." He paused for a quick laugh, and then reiterated that last statement for emphasis. "Never went back."

Rebels With a Clue: Tom Petty and The Heartbreakers, circa 2010's *Mojo*, were still making musical waves. From left to right: Scott Thurston, Ron Blair, Benmont Tench, Tom Petty, Mike Campbell, and Steve Ferrone. Individual bandmember photos by Sam Jones.

Free Fallin' Forward

They had no alternative, really. "We would have been out of money. It wasn't an option, as far as we were concerned," Petty continued. For his part, Petty's sympatico creative partner Mike Campbell confirmed with me directly that their backs were against the wall. "We had to get outta Gainesville, but we had no idea what was coming," he recalled. "We were so green, just flying by the seat of our pants. We just wanted to get some gigs to play and then make a record someday. But it was all pie in the sky—distant dreaming, you know?"

The sonic building blocks for realizing those dreams were already well in place, however. "There was a whole

lot of musical talent down there in Florida at that time," observed keyboardist Reese Wynans, perhaps best known for his years behind the keys with Stevie Ray Vaughan and Double Trouble and, more recently, as a touring keyboardist for Joe Bonamassa. Wynans grew up in Sarasota and Clearwater, but he mainly plied his trade in northern Florida in Jacksonville, where, from November 1968 to March 1969, he had hooked up with Dickey Betts, Berry Oakley, and Duane Allman in a band called The Second Coming, one of the precursors to The Allman Brothers Band. "At the same time we were all getting together and jamming in Jacksonville, Tom Petty and The Heartbreakers were getting together as Mudcrutch in Gainesville, about 200 miles to the south," Wynans continued, referencing the aforementioned pre-Heartbreakers band that began taking flight around 1970—and he was quite impressed with what he had heard. "I'm a big fan of theirs, and I love their keyboard player, Ben—Benmont Tench. I just love the way he plays."

Other Gainesville natives could see the signs as well—including a guitar slinger named Don Felder, who spent his own formative years in the Sunshine State prior to venturing west himself to join the Eagles in the early '70s, teaching guitar to eager fretboard learners like a certain young sandy-haired Southern gentleman. "Who knew Tom Petty would become such a rock music icon?" Felder mused. "I was so proud to see Tom become as popular and influential as he did."

With his eyes and ears perpetually on the prize, Petty knew what it would take to turn the tide. "Getting a record deal is what changed everything around," he revealed. About halfway into their '74 trip, they made a stop in Tulsa, Oklahoma, to see Denny Cordell, the noted British record producer and co-owner of Shelter Records with Leon Russell. In effect, Cordell made a pre-emptive strike. "Yeah, he kinda headed everybody off at the pass," Petty agreed, "but it was a good move to make, because he was the most musical of anyone we'd run into. He didn't seem like an executive type, so we gave him our word we would sign with Shelter. He gave us some cash right then and there, and we were committed. We probably wouldn't have made it without him."

Though Mudcrutch didn't pan out, Cordell stuck to his guns and produced the first two Tom Petty and The Heartbreakers LPs for

1976 Mike Campbell, Ron Blair, Tom Petty, Stan Lynch, Benmont Tench

1977 Ron Blair, Tom Petty, Benmont Tench, Stan Lynch, Mike Campbell

1982 Howie Epstein, Stan Lynch, Tom Petty, Benmont Tench, Mike Campbell

All B&W band photos on this spread ©Aaron Rapoport; Tom Petty color photo by Mark Seliger

Shelter—their brash, self-titled November 1976 debut and equally raucous May 1978 follow-up, *You're Gonna Get It!* At that point, the band was up and running—quite literally. "We were so fortunate that so many things came true for us," Campbell noted, "but you could see in the 'Runnin' Down a Dream' video what to expect, as we didn't know what we were doing. We were playing music, just trying to survive." Here, Campbell refers to scenes in the animated video clip for one of Petty's most iconic songs from his April 1989 solo album on MCA, *Full Moon Fever.* Upon hearing that, I cited a key line from "Takin' My Time," a song on the full band's June 2010 release on Reprise, *Mojo*—a line that goes, "When I was a young boy / My fuse was lit." Did the Heartbreakers guitar icon agree with that assessment? "Yeah—oh yeah! Our fuses were definitely lit—and they burned pretty hot too," he concluded with a laugh. (Into the great wide open, indeed.)

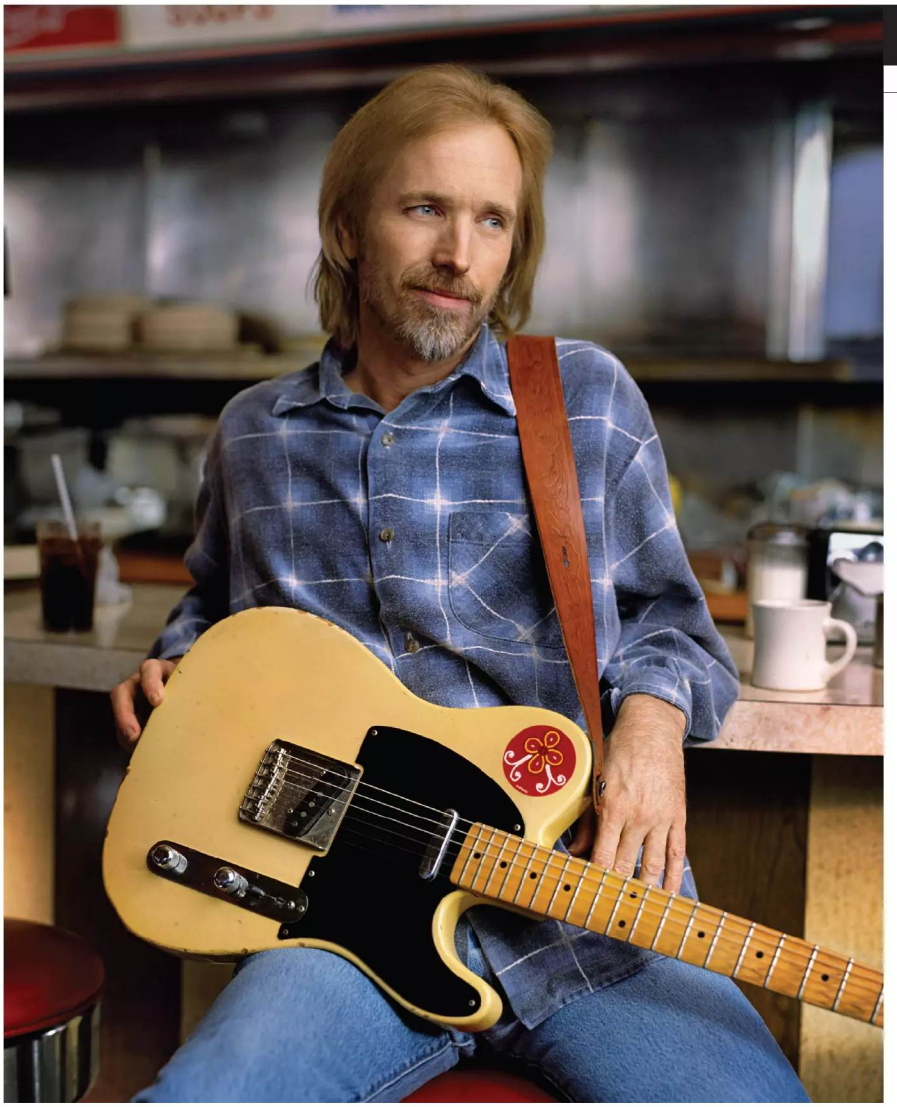
During their 40-plus years as a functioning entity, Tom Petty and The Heartbreakers made damn sure their work was never compromised, no matter the format. Perhaps Neil Young said it best after I told him how much I admired the consistent sound quality inherent in Tom's canon. "They're just immaculate recordings," Young replied. "And we get to hear them in all their glory, those Tom Petty records. He really cares about the sound, and he makes his stuff as good as he can make it."

Over the years, I've compiled countless comments about Tom and his music from a myriad of artists who either worked directly with him or admired the man and his music from afar, intending to someday celebrate his recorded legacy in a story like this one. The balance of these quotes has never seen the light of day outside of raw transcription files, but they're finally put forth here collectively to paint a picture of a career artist who gave us his all, right up to the literal final note. And with that, I leave it to Tom and his Heartbreaker compadres to kick off this exercise in full Petty fever. *You belong with your love on your arm / You belong somewhere you feel free. . .*

Go Ahead And Give It To Me

TOM PETTY The first objective is to make a really good song and a good record. Obviously, my vision at the time we started out doing this was just stereo, but I have come around to the idea of doing 5.1 mixes of our music. It's interesting to do—and Ryan [Ulyate, Tom's longtime engineer] does such a great job of it—but you gotta make a good record in the first place. If you don't have a good song and a good track, the best mix in the world ain't gonna mean anything.

One thing we achieved with records like



Above, Tom Petty looks ahead to his next move. Below, TP&THBs' 2009 box set, *The Live Anthology.*

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1) Master tapes for *Damn the Torpedoes*, after arriving at engineer Ryan Ulyate's home studio for the 5.1 mix of the 2010 Geffen/UMe Blu-ray edition. 2) TP, in full *Mojo*-era repose. 3) The Traveling Wilburys harmonize together (from left to right): Bob Dylan, Tom Petty, Roy Orbison, George Harrison, and Jeff Lynne.

Mudcrutch [their April 2008 reunion album on Reprise] and *The Live Anthology* [The Heartbreakers' November 2009 4CD, 5CD+2DVD, and 7LP sets, all on Reprise] is where you get enough volume to get a presence, but we've preserved a nice high end without that high end starting to hurt. Especially with the live music, it was a challenge to keep that high-end nice and sweet. I think we pulled it off. I mean, we're making *records*. (laughs)

BENMONT TENCH (Heartbreakers keyboardist-cum-backbone who concurrently became an in-demand session player): Denny Cordell told me a long time ago the reason some records sound so loud is because there's less on them. That's probably true. For example, of my favorite stuff The Heartbreakers did, "Breakdown" [the lead single from the band's aforementioned 1976 debut LP] has three guitars on it, but the essence of the record is Mike's guitar lick, Tom's vocals, a solitary Wurlitzer, bass, and drums. It's a very spare drum pattern. And when it comes on, it catches your ear. It's really got a lot of space.

I think that's a really good-sounding record, "Breakdown." We just captured a mood on that take. We had cut it earlier and thought we had it—we had cut it with a grand piano, and it was a little bit different—but Tom said, "No," and called us back to the studio. It just takes that one moment. The good musicians can pretty much call up the moment, and the good bands, as an ensemble—whether they're a gang of session musicians for [Van Morrison's seminal January 1970 Warner Bros. LP] *Moondance*, or a band like us—can catch what the wave is. You just grab onto it, and that's The Grail. It's [early Beatles recordings like] "Twist and Shout," "Things We Said Today," "No Reply"—that's The Grail.

MIKE CAMPBELL (The Heartbreakers' not-so-secret weapon in his multi-hyphenate role as guitarist, co-songwriter, and composer): We all used to listen to records together, and trade records around. I mean, there's just something romantic about vinyl. That's what we grew up on. There's a sound to it that's very familiar to me that makes the guitars sound in a certain middle range, something I really like. To think of a little metal needle on a piece of plastic, making the sound—you feel it. I think you feel the vibrations differently on vinyl than you do on digital recordings.

RYAN ULYATE (the band's go-to engineer/producer who's also remastered the entire Petty catalog for vinyl and high-resolution digital reissues alike, with hopes to continue working his way through the catalog in Atmos—albeit only at the behest of the Petty family): The Heartbreakers worked very, very hard. If you listen to all their stuff, you hear how these guys are putting in that extra bit of energy to get that last take, to get that little bit of mojo, that *je ne sais quois*—whatever you want to call that last little bit. They were always going for it with that drive and that dedication—to achieve something that's just higher and better than they've ever achieved. It shows in all of this work.

When I was working on the Atmos mix for [Tom's November 1994 Warner Bros. solo album] *Wildflowers*. I told both Adria [Petty, Tom's daughter] and Dana [Petty, Tom's wife] about it. I said, "I'm sitting in the middle of this room listening to this stuff, and I kinda teared up." I don't usually do that. I was doing "House in the Woods," and I was going, "This is so damn good! Tom would love this! Man, he would have loved this." That just brought a tear to my eye.

Listening to it this way in Atmos, you get to hear something that is spectacular—and I know Tom just would have been like (exclaims loudly), "Whoa!" (laughs) Well, what he *really* would have said to me after listening to it in Atmos would have been (slight pause), "It's f---ing great." (both laugh heartily)

They Do Know How It Feels

CHRIS HILLMAN (original bassist of The Byrds; Petty produced Hillman's September 2017 solo album on Rounder, *Bidin' My Time*, which was also Petty's final production work before his passing): [Guitarist] Herb Pederson, [guitarist] John Jorgenson, and I played "Wildflowers" at the MusiCares [Person of the Year] event that honored Tom in Los Angeles [on February 10, 2017]. I had never heard it before! But I liked it, and I asked Tom if he'd mind if we cut it for *Bidin' My Time*. In his usual humble way, he said, "I'd be honored if you'd do one of my songs."

I love that song. We used to do it every night at the end of the Sweetheart of the Rodeo [50th] Anniversary Tour [in 2019] when we'd do a tribute to Tom. Roger [McGuinn] would sing "King of the Hill," and Marty Stuart would do this killer version of "Runnin' Down a Dream" acoustically. Oh, man! ["King of the Hill," co-written with Petty, appeared on Byrds co-founder McGuinn's January 1991 solo album on Arista, *Back From Rio*. "Hill" also featured Tom on co-lead and backing vocals.]

We [Chris Hillman, Herb Pedersen, and The Shelters] also did a recut of "Feel a Whole

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B&W Tom Petty photo by Sam Jones

Lot Better" to honor the 30th anniversary of Tom's *Full Moon Fever* album. I said to Ryan [Ulyate], "There's no sense in me doing The Byrds version [which appeared on their June 1965 debut LP on Columbia, *Mr. Tambourine Man*]. I don't want to stray too far away from the song, and I don't want to do what Tom did when he covered it—and he covered it really well." Ryan comes up with the idea, "Why don't you guys start it acoustically?" And then we had the band come in, which was The Shelters, Tom's protégés. I still think it was so good, and so spot on. They sure got that pure '60s rock thing going there.

LINDA RONSTADT (one of the leading vocalist/interpreters of the pop/rock era who always walked the walk to the beat of a different drum): I just love Tom Petty as a singer—and The Heartbreakers are, bar nothing, my favorite rock & roll band. They came along later after absorbing all the influences of everybody else, so it's like you get everybody with them—you get The Rolling Stones, you get The Byrds, you get Bob Dylan, you get Jackson Browne.

Tom Petty makes the best-sounding records. He mixes them before he records them. They figure out the arrangements, and the mixes don't get in the way of things when they record. Take "The Waiting '' [the lead single from the band's May 1981 LP on Backstreet/MCA, *Hard Promises*]. That song was an intricate musical journey. I just kept going, "Oh, you got that from Mick Jagger." "Oh, you got that from Bob Dylan." "Oh, you got that from The Beatles." "Oh, there's some Jackson Browne." He also got a lot of that stuff from Roger McGuinn—those hard r's. (Linda sings, Tom-like,) "The waiting is the hardest part." That's Roger McGuinn, in a California accent coming from Brian Wilson. (chuckles)

Tom also sings "me" in his own way, and "you." (Sings again,) "I want to get to youuuuu." (laughs) Listen to his song "Southern Accents' ' [the title track to the band's March 1985 album on MCA]. God, what a beautiful, great song that is—so beautifully done. Would I ever cover "Southern Accents"? No, because I'm not from the South—but I see what he's saying exactly. I love that line about, "There's a dream I keep having where my mama comes to me / And kneels down over by the window and says a prayer for me." It set a beautiful portrait of somebody just living there at the lower bottom, or maybe the upper bottom—a working stiff just getting through. Not special, never got any breaks, and he just defines himself by his region. I thought it was the most touching, completely non-patronizing, unflinching portrait of a poor working-class American. He's a Southern guy, you know? "That drunk tank in Atlanta's just a motel room to me." Bloody hell, that's fabulous. "Think I might go work Orlando / If them orange groves don't freeze." It's so great—like being an itinerant worker.

And Benmont Tench—he's such a great keyboard player! I've actually worked with Ben and Mike [on her June 1998 LP on Elektra, *We Ran*]. Mike's just an incredible guitar player, and all the musicians know how good he is. When you're up there playing that beautiful, elegant stuff that he plays—he just needs that, to be able to play it. I'd love to trade places with him any day of the week. (laughs) I would totally do that. What a real master he is.

TOM PETTY: I remember Mike doing the solo on "Runnin' Down a Dream" [on the aforementioned *Full Moon Fever*]. It was entirely improvised—a one-take solo—and he was sitting in a chair hunched over and looking away from us. Jeff [Lynne, *FMF*'s co-producer] looked at me and said, "Can you believe that?" (laughs) He hit that in one go.

GEORGE THOROGOOD (Delaware destroyer-slash-guitarist/vocalist forever bad to the bone): You've got to tip your hat to Tom Petty. He's the only one from the third generation of rock people who broke through the golden veil to get to the top level of rock royalty. Nobody else did that but Tom. But I never got the chance to meet him and say, "If you want me to mow your lawn, Tom, I'll do it." (laughs heartily)

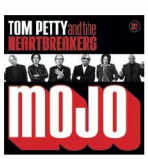
CHRIS SMITHER (veteran folk/blues songsmith who covers TP's "Time to Move On" from *Wildflowers* on his May 2024 LP on Signature Sounds, All About the Bones): Why is Tom Petty such an important artist in the overall rock pantheon? The answer to that is almost a tautology. He's important because so many people like what he does, and so many important people think he's important. Bob Dylan, George Harrison, and all The Traveling Wilburys knew he was important. They knew he had a lot to say, and he had a cool way of saying it. Catchy songs, sincerity mixed with a little humor, and a lot of musical know-how—it's a hard combo to beat.

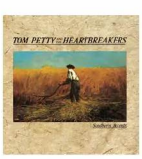
[My guitarist] David Goodrich suggested I cover "Time to Move On," and I usually take his suggestions seriously enough to at least give it a shot. I played around with it a little, changed the key, shifted a little rhythmic emphasis so that I could "Smitherize" it, and suddenly it was fun to play. Give me a song like that that's fun to play, and I'm pretty much sold.

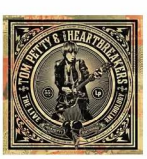
Everybody's Talking 'bout The Wilbury Twist

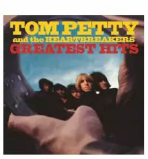
DHANI HARRISON (son of George Harrison, he organized the *Concert for George* tribute to his late father—a.k.a. Nelson Wilbury and Spike Wilbury—at the Royal Albert Hall in London on November 29, 2002, a deeply moving show Tom and the band wholeheartedly participated in): I really loved working with Tom and everyone on *Concert for George*. They were all looking to me to see if everything was okay, so that was my role.

I'm on both Traveling Wilburys records [October 1988's *Vol. 1* and October 1990's *Vol. 3*, both on Wilbury Records]. I was on a track called "Margarita," on the first one—I'm the little kid singing with the really high voice. (both chuckle) On *Vol. 3*, I'm on "Wilbury Twist," and I think I played on "Cool Dry Place." I was definitely on "Maxine" and "Like a Ship"









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[the two *Vol. 1* bonus tracks Dhani overdubbed guitar onto in 2007 for the 2CD+1DVD and 3LP versions of *The Traveling Wilburys Collection* on Wilbury/Rhino].

Yes, I chose my Wilbury name. My dad had Nelson Wilbury, after Nelson Piquet, the Brazilian Formula One champion. And I chose Ayrton Wilbury, after Ayrton Senna, [another] Brazilian Formula One champion, so we could keep it in the family. [Both of those legendary drivers won the Formula One title three times each.] Actually, on the first one, I think I might have been credited as Cyril Wilbury, and then on *Vol. 3*, I was credited as Ayrton Wilbury, because we all wound up changing our names.

After Tom passed away [in 2017], I spent a week with The Heartbreakers. We're all really close, and it was a really sad week. (slight pause) They're such lovely guys. They got me through so much, and they've been great support for me. I feel very privileged to have been standing alongside them. They're such legends.

JEFF LYNNE (ELO mastermind and producer, a.k.a. Otis Wilbury and Clayton Wilbury): Tom was so great. Did we go for a consistency in sound when I was recording guys like Tom, George [Harrison], and Ringo [Starr, who played on *Full Moon Fever*]? Let me tell you this. In the old days, a lot of the recordings were done on 16-track, and I'd have to bounce so much that you start to lose a bit of quality—say, bouncing 4 tracks down to 2, or 6 down to 3—but that was to make more space. You'd just mix them down onto the same tape. They're still there, but you have to pre-balance how loud it's going to sound when you finally finish the record.

I did love the vocal harmonies that I'd have to fly in, back in those days. I'd mix them out onto 2-track and back in again—probably 8 tracks of vocals, if I was doing a big harmony piece—then out to 2-track, and then I'd fly them back in onto 2 tracks of the 16 tracks. That's how you made all the space in those days.

TOM PETTY (a.k.a. Charlie T. Wilbury and Muddy Wilbury): I think in the period where a lot of us were in garage bands, Jeff was home with a multitrack recorder—and that's always been his real love, more than performing. He's interested in records, and how to make records. Jeff taught me quite a lot during the making of *Full Moon Fever.* Writing with him was a really good experience for me. He showed me lots of things I had never thought about before with chord patterns and melodies. He approached everything with such a good attitude—it's really like you're just having fun. It never seems like work. He's very efficient in the studio, and it was like we were driving the car together.

People always wanted me to have echo on my voice, and Jeff *hates* echo. Absolutely hates it. After working with him for about a month or so, I hated it too. I'm still real picky about using it. He just taught me to get up there and sing on the mike completely dry, and it brought out a certain sound that was kind of different for the time. Rick Rubin told me that when he heard *Full Moon Fever,* he quit putting effects on the vocals. I think he was working with the [Red Hot] Chili Peppers at that time [on their September 1991 Warner Bros. release, *Blood Sugar Sex Magik*], and he said, "I just started doing the vocals dry." There's something about the voice being kinda naked like that, where it's a little more emotional. [Rubin later worked with Petty on various singles and album releases between 1993 and 1999.]

The songwriting for The Traveling Wilburys was at least four of us doing it together, though we did have input from a lot of people on those records. My favorite Wilburys song is probably "End of the Line" [from *Vol. 1*], but I like a lot of them. There was one Jeff and I did

The Best of Everything: 4) Tom Petty and The Heartbreakers gather together to celebrate the sweet, sweet music of their 2014 Reprise release *Hypnotic Eye*, the band's final studio album. 5) All hail the legacy of the late, great Thomas Earl Petty, seen here in a beautiful portrait used as the central cover image of his posthumous 2018 6LP/4CD box set on Reprise, *An American Treasure*.

Band photo by Mary Ellen Matthews; Mark Seliger

after one of our sessions ended—an obscure one called "Poor House," on the second record [*Vol. 3*]. That was one I wrote about 10 minutes after the session had ended and everyone was leaving. I came up with this song, and the engineer Richard Dodd was like, "Hey, everybody wait—we're gonna do this really quick." We laid the track down, and Jeff and I went out to sing—it's all in two-part harmony. We did it together on one mike, which people don't do that much anymore. We just thought we'd go for it because there's no fixing it up on one mike, so we just did it—and I really enjoyed doing that track with him like that. At that time, we sang together quite a bit, and we had gotten pretty good at harmonies. George sang with us too, but Jeff and I had really gotten the thing down where we could go out there and sing and make it sound pretty good.

You see us all singing around one mike together in the "Handle With Care" video [the lead track from *Vol. 1*]. On that one in the studio, I think Bob [Dylan] and I sang together, but the other guys [Lynne, Harrison, and Roy Orbison] did it separately. We did sometimes gather around the mike, mainly if it was a background part where we might go for it once. I remember Jeff, George, and I doing at least a day or two of backgrounds at Friar Park [in England], and we'd do them all three of us at once. We got to where we could do that and pull it off.

There Ain't No Easy Way Out

BENMONT TENCH: A really good expression of what Tom put out as a songwriter—and as a person—is that, in a lot of his songs, there was this idea of *encouragement*. It's important to me to be able to acknowledge the darkness, but there are people like Tom who also can shine light—and he did that a lot in his music.

MIKE CAMPBELL: I never wanted to be a rock star. I just wanna play music. I'm probably weird that way. But with Tom, he was such a great leader. It was easy for me to sit back and be in a supportive role, and not be out in front—and I've been very comfortable being there.

I think our legacy will be like Beethoven or Bach, you know? Good music will always be there, even a hundred years from now. This music—the good music—will hold up, just like Mozart has. Songs that touch people will last a long time.

What song of ours would I recommend to those future listeners? "American Girl." That was on our first [self-titled 1976] album, and it's an adrenaline rush. I think it basically says everything about what The Heartbreakers are all about—the lyrics, the style, and the energy. That's pretty much us.

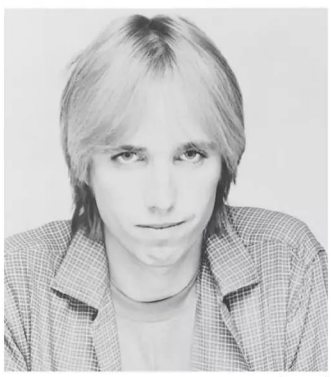
TOM PETTY: What will the group be doing in 2030? Well, I just hope to be here. (laughs) I don't see why we have to quit, why we can't keep growing. I think the important thing is, there needs to be a reason to buy another record. If I made [October 1979's masterpiece on Backstreet/MCA] *Damn the Torpedoes* as every record since the '80s, there wouldn't be a reason. I try to look at it this way: "Let's go where the wind takes us." We're gonna be somewhere different each year—each couple of years. We're gonna hear things differently; we're gonna be in a different place.

I don't see why you have to stop. The whole idea of being an artist is to grow. You keep having something to say—and you have fun. That's a real important ingredient. If you're having fun, stuff will happen. It's like Davy Crockett's motto: "Be sure you're right, then go ahead."

The shame about modern entertainment is that it has been boiled down to sound-bites—but there are people who want to know more than that. Me, I'm working on music for a whole other crowd. (laughs) I'm doing it a whole different way—and I don't see any reason to change that.

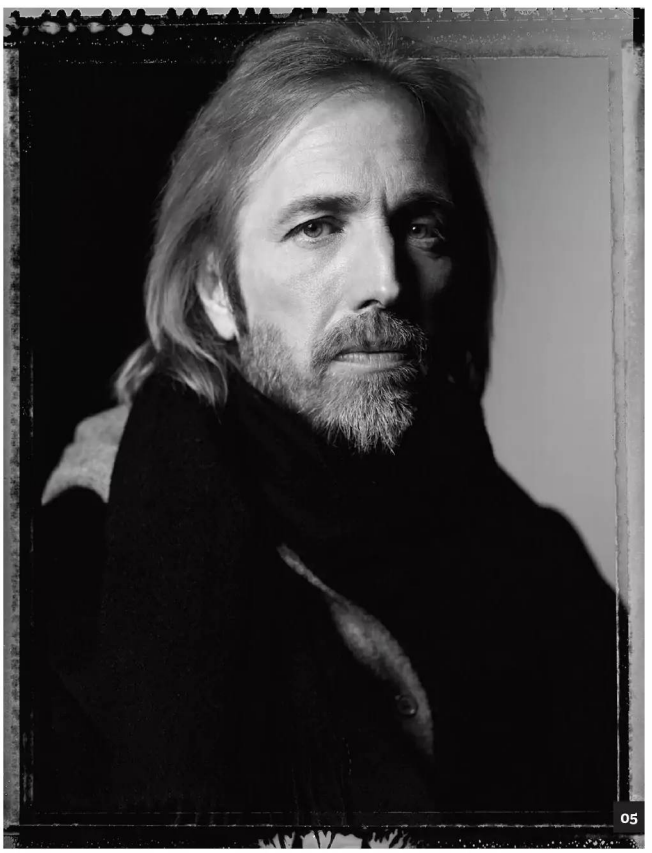
1977

1979



1982

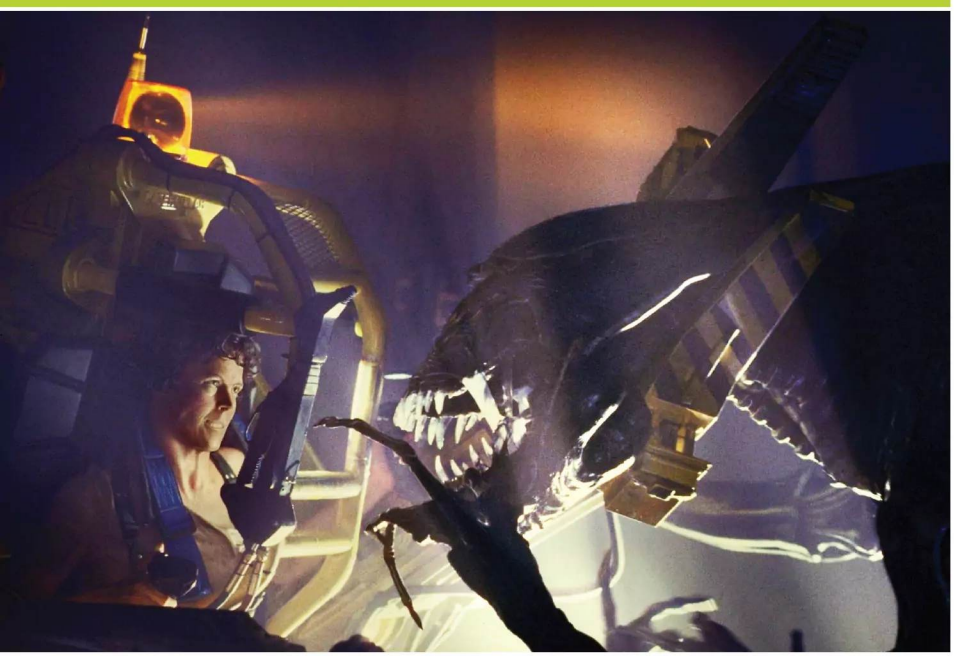
1985



05

RATINGS
REFERENCE ★★★★★
EXCELLENT ★★★★½
GOOD ★★★½☆
FAIR ★★½☆☆
POOR ★½☆☆☆

ALIENS, THE ABYSS & TRUE LIES ON 4K



ULTRA HD 4K BLU-RAY
STUDIO: Fox/Disney
HDR FORMAT: Dolby Vision, HDR10
AUDIO FORMAT: Dolby Atmos with TrueHD 7.1 core

Across a career now spanning 40 years (if we use the version of his résumé that lists *The Terminator* as his debut), James Cameron has proven himself as one of our most popular filmmakers. His oeuvre totals less than 10 movies, yet they have been much-appreciated–including two that were top box office champs–so newer, superior disc releases are seemingly forever at the top of fans' wishlists. Fox/Disney recently sent us a trio of long-demanded Cameron films in so-called Ultimate Collector's Editions, available for the first time on 4K disc. Let's explore them in the order of their theatrical release.

An enduring sci-fi/action gem, *Aliens* is a suspenseful tale of betrayal, courage, and redemption that might be Cameron's best work–a sequel that in some ways surpasses even Ridley Scott's *Alien*. Ripley (Sigourney Weaver) returns to planet LV-426, this time with a squad of space marines, to confront her fears, restore her career, and maybe save some lives. Two versions are presented via seamless branching, including an expanded special edition that reinstates some crucial backstory (and wicked violence), enhancing the experience tremendously.

Three years later, Cameron combined his love of the ocean and storytelling to bring audiences *The Abyss*, a sometimes-successful attempt to inspire awe as a crew of underwater roughnecks and a few Navy SEALs discover a strange new civilization. Here again, a longer special-edition cut is provided, with a Cold War subplot taking us to the brink of World War III. The restored scenes often feel forced, however, and not truly integrated with the main story, which emphasizes characters and relationships–not necessarily a bad thing.

Arnold Schwarzenegger was enamored of the French comedy *La Totale!* and asked his friend James to remake it with him as the star, which led to Cameron writing a drastically different script and helming *True Lies*, the story of super-spy Harry Tasker who manages to keep the truth of his dangerous career a secret from his bored wife. As Arnold is extensively (and obviously) doubled throughout, we're asked to suspend disbelief to the breaking point. Though Cameron is not exactly a master of laughs, the film nonetheless has garnered a loyal fanbase, particularly among female audiences.

The three movies were made on wildly different budgets and shot by different cinematographers using different film processes. An advanced form of digital noise reduction (DNR) that uses artificial intelligence ostensibly to improve the image, has been applied throughout to bring these movies to 4K, but the results are subjective. The images in question are at least 30 years old, and in their truest form had a distinct look, so any modification can be a slippery slope. All three films feature Dolby Vision high dynamic range (HDR) and arrive on triple-layer BD-100 platters to enable the highest bitrates.

One could argue that *Aliens* is one of those cases where the step-up in clarity has a downside, exposing the rough edges of '80s analog visual effects (which, by the way, landed the film an Oscar). Film grain has not been completely scrubbed away, but if the inherent grittiness of the original release holds much of the charm for you, this cleaned-up version just might be too clean. On the bright side, the unnatural, waxy skin textures on display in the abysmal *Terminator 2* are largely absent here, replaced with plentiful detail in freckles, pinstripes, stubble, makeup, and much more. Likewise, the 1.85:1 image remains sharp, even in scenes where dusty winds obscure headlamps, and HDR highlights are robust.

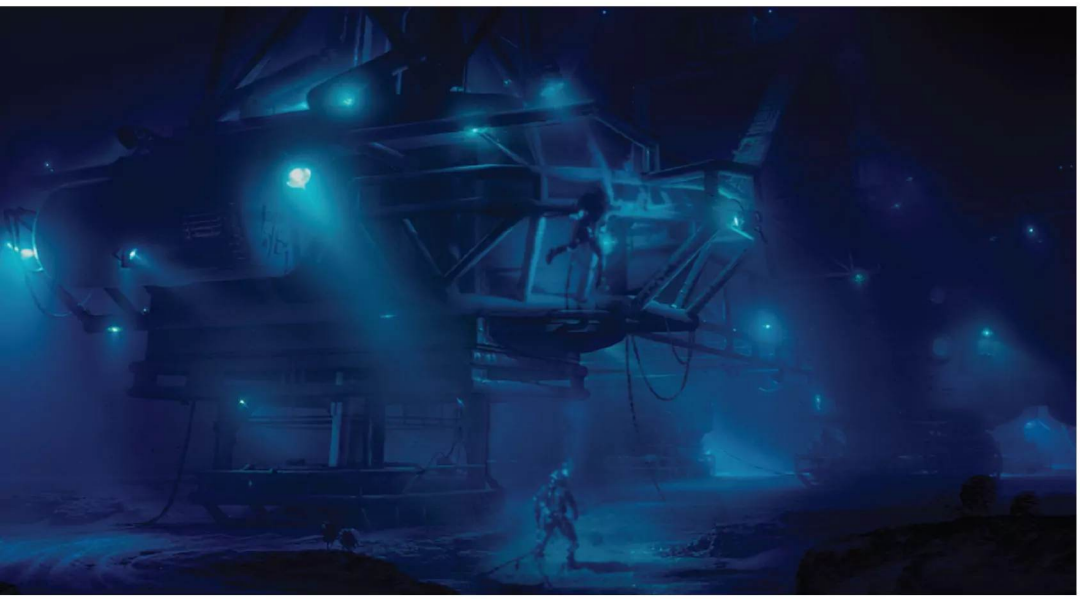
The Abyss receives a standout 4K presentation that far surpasses any of the previously available releases. Detail is extraordinary, right down to dirt on the actors' faces, while searchlights cutting through the blackness of the deep are powerful and dramatic, despite some unfortunate ringing in underwater glows. Though the 2.39:1 image has been digitally refreshed, it remains quite filmic, especially for a movie that is not particularly colorful: Even so, the many shades of gray-blue are well-drawn within the wide color gamut.

It's fitting that *True Lies*, Cameron's weakest movie, is the biggest disappointment of the group: the heavy hand of DNR is blatant at times and color and contrast can be wonky with bright highlights appearing harsh and unresolved. I observed excessive strobing in fast-action scenes, an unpleasant distraction seldom seen in respectable 4K masters. Much like my estimation of the *Inglourious Basterds* "upgrade" a few years ago, this disc falls well short of the level of quality we know is possible from UHD Blu-ray. (As was the case with *Abyss*, this movie jumped right from DVD to 4K Blu-ray here in the U.S.)

All three titles carry new Dolby Atmos audio tracks, exclusive to the 4K discs in each set. A brilliant remix and the selection and application audio cues in *Aliens* go a long way toward achieving the director's intended moods (it's no wonder the movie won the Oscar for Best Sound Effects Editing). Keen usage of surround channels makes this strange, often terrifying world come alive, whatever the location happens to be, starting with

the sound of the different docking clamps that lock onto the exterior of Ripley's lifepod. There's appreciable depth to the mix, with the liberal exploitation of overhead channels imparting welcome ambiance, and the strategic placement of effects within the sound field heightening the action and suspense, especially during shootouts and when the xenomorphs hiss and whip their deadly tails.

The Abyss is a showcase of subtlety, with excellent phasing between the speakers as earthlings and unexpected visitors swoosh about in the water. Individual instruments in Alan Silvestri's score are identifiable and spacious in a soundtrack that also convincingly conjures the sensation of being inside a mic'd dive helmet and pulls viewers into the action with the aggressive rendering of a fierce wind storm that stands as a testament to the compelling nature of overhead audio.



Brad Fiedel (*Terminator*, *T2*) serves up another terrific score for *True Lies*, one that propels the action and adventure forward. Gunshots are frequent and forceful, as we feel bullets whizzing by. And amid all the firepower and explosions, the bass is rock solid, making big events even more powerful, something that can also be said of the Atmos soundtracks for *Aliens* and *The Abyss*. A DTS-HD Master Audio 2.0 soundtrack is also supplied for each of the three movies, whereas *Aliens* alone preserves the original 4.1 Dolby Surround theatrical mix (in Dolby Digital) along with two isolated James Horner musical scores. Finally, the Blu-ray disc provided with each of these Ultimate Collector's Editions features a DTS-HD Master Audio 5.1 soundtrack.

Aliens and *The Abyss* were both released on landmark laserdiscs, and *Aliens* is part of the larger *Alien* franchise, so a vast library of archival extras exists, most of which are provided on a third bonus disc. Standouts include a 2003 *Aliens* commentary with the director, cast, and crew and a no-punches-pulled "making of" documentary for *Abyss*. Curiously, the extras for *True Lies* are mostly still frames, which explains why a third disc is not included. Each of the three titles also includes a new retrospective featurette, all of which add previously unshared insights to these enduring motion pictures.

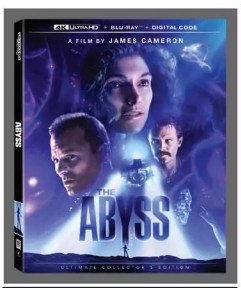
Like so many of James Cameron's admirers, I'm extremely gratified to have these missing titles finally on Ultra HD (and even Blu-ray in some cases!)

And yet I remain perplexed that a boundary-pushing filmmaker who puts so much care into his work didn't do more to ensure reference-quality delivery when mastering in 4K. Sure, these discs are cause for celebration, but perhaps more of a modest toast than a full-on bacchanal. ● **Chris Chiarella**

Aliens

The Abyss, R
ASPECT RATIO: 1.85:1
LENGTH: 137 mins./154 mins.
STARRING: Sigourney Weaver, Michael Biehn, Carrie Henn, Paul Reiser, Lance Henriksen, Bill Paxton

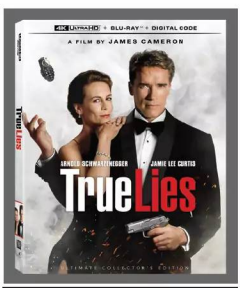
PICTURE	★★★★
SOUND	★★★★★
EXTRAS	★★★★½



The Abyss

1989/1993, PG-13
ASPECT RATIO: 2.39:1
LENGTH: 140 mins./171 mins.
STARRING: Ed Harris, Mary Elizabeth Mastrantonio, Michael Biehn, Leo Burmester, Todd Graff, Kimberly Scott

PICTURE	★★★★½
SOUND	★★★★★
EXTRAS	★★★★



True Lies

1994, R
ASPECT RATIO: 2.39:1
LENGTH: 141 mins.
STARRING: Arnold Schwarzenegger, Jamie Lee Curtis, Tom Arnold, Bill Paxton, Tia Carrere, Art Malik

PICTURE	★★★
SOUND	★★★★
EXTRAS	★★½

POOR THINGS

A WOMAN who has committed suicide is given a baby's brain by a brilliant but demented surgeon (Willem Dafoe) before being reanimated using traditional mad-scientist electrical feats. Thereafter, Bella (Emma Stone) must gradually learn everything–walking, talking, sense, and behavior–from scratch, just as a child must. In this unique film (nominated for 11 Academy Awards, winning four), a *Frankenstein*-like tale is told in unique episodes as Bella conquers various stages of understanding people, books, and the ways of the world while experiencing new adventures as she travels from Victorian London to Lisbon, Africa, and Paris.

The first of many beautiful visuals has a woman clad in a rich blue dress, seen against a moody, blue-gray sky, creating the look of a lush surrealist painting. Her subsequent plunge off the bridge–shown in an extreme long shot–puts the story in motion as we cut to monochrome scenes with the look of a 1930s Universal horror film. The ever-changing style and palettes cinematographer Robbie Ryan uses to shoot *Poor Things*–ranging from naturalistic to saturated images, smeary overlit tones and deep blacks, bright whites, and a wide range of grays with fisheye lens or iris shots suddenly imposed–reflect the new and strange things Bella experiences on her quest for knowledge. It's all very striking with excellent contrast, often in a deep focus that simultaneously reveals sharp detail in close, mid, and distant objects or the bizarrely wonderful Oscar-winning costumes by Holly Waddington.

The mostly string score often swells into all channels, with instruments separated across the channels. At other times, a plucked or bowed string instrument bounces back and forth or a booming horn echoes in the surrounds. The soundtrack is exceptionally clear and full without distortion in the lower and higher ranges, though notes are occasionally bent completely out of shape, adding to the film's off-kilter mood, or you find yourself immersed in a glorious wash of Jerskin Fendrix's otherworldly music. Surrounds are also used for convincing atmospheric effects, as when a bird flaps from behind or fireworks explode from one direction or another.

Three deleted scenes don't add much to the film's many glories, but there's a decent making of featurette with the amazing cast talking about characters (and, of course, admiration for one another). Meanwhile director Yorgos Lanthimos and crew discuss the specially made Eastman film stock that gives the film its unique look as well as the award-winning production design, costumes, and prosthetics, all of which contribute to a fantastical dream world. ● **Josef Krebs**

ULTRA HD 4K BLU-RAY
STUDIO: Fox/Disney, 2023
ASPECT RATIO: 1.66:1
AUDIO FORMAT: DTS-HD Master Audio 5.1
LENGTH: 141 mins. R
DIRECTOR: Yorgos Lanthimos
PRODUCER: Ed Guiney
STARRING: Emma Stone, Mark Ruffalo, Willem Dafoe, Ramy Youssef, Christopher Abbott, Suzy Bemba

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★

20th Century Searchlight/Disney

THE BEEKEEPER

IN JASON STATHAM'S latest action-thriller, *The Beekeeper*, he portrays Adam Clay, a retired operative from a clandestine organization known as "Beekeepers." After the tragic loss of someone close to him, due in part to the actions of professional online scammers, Clay comes out of the shadows, embarking on a mission to dismantle a system that has corrupt ties to the highest levels of government.

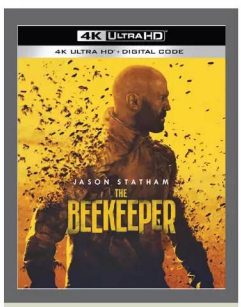
I am a Jason Statham fan and looked forward to seeing *The Beekeeper*. It's far from original, conceptually speaking, containing the requisite formulaic foundation to make for a fairly compelling and somewhat engaging story of justice and retribution. The first two acts are the best, with the third losing the earlier momentum. Regardless, I liked how the unfolding plot was handled, as well as the reliance on style-over-substance storytelling. The action is purposefully overdone, fitting neatly within the context of the story, while giving Statham the opportunity to show off his talents and charisma. Despite its narrative shortcomings, *The Beekeeper* is entertaining, proving yet again that star Jason Statham still has the chops to deliver the goods for those of us who appreciate his skill set.

The master was derived from 4.6K sources and finished on a 4K digital intermediate. This action-based film relies on stylized visuals that employ stark contrast, vivid chromatic elements, and some CGI. With appreciable levels of delineation and richness of color, the image appears refined and vivid. When brought together, the combination of color, sepia, and gradational gray tones is visually engaging. High dynamic range proved a defining element, underscoring the dimension in blacks and shadows. The various firefights, explosions, and brilliant light during the violent encounters were the highlights of the HDR implementation.

The Dolby Atmos mix is a blend of atmospherics, discrete effects, and music, which combine to create an appreciable level of sonic immersion. This showcases the action sequences as sounds rotate and revolve around the soundstage, from both above and at ear level, making for an involving surround sound display. Dialogue rendering is terrific, as it holds sway over the front soundstage. Emboldened dynamic range renders the active elements within the surround mix with superior clarity and palpable, deep bass transients.

Disappointingly, there are no bonus features offered in this barebones Ultra HD Blu-ray/digital release. A digital copy code is the only thing included.

The Beekeeper isn't destined to win any awards, but it is pitch-perfect popcorn entertainment that looks and sounds great on Ultra HD Blu-ray. ● **Ralph Potts**



ULTRA HD 4K BLU-RAY
STUDIO: Warner, 2024
ASPECT RATIO: 2.39:1
HDR FORMAT: HDR10
AUDIO FORMAT: Dolby Atmos with TrueHD 7.1 core
LENGTH: 105 mins., R
DIRECTOR: David Ayer
STARRING: Jason Statham, Emmy Raver-Lampman, Josh Hutcherson, Bobby Naderi, Minnie Driver, Jeremy Irons, Phylicia Rashad

PICTURE	★★★★½
SOUND	★★★★★
EXTRAS	

Warner

MEAN GIRLS (2004 & 2024)

THE COMEDY classic Mean Girls and its 2024 musical remake serve up the same basic story, with or without the song-and-dance numbers. Wide-eyed Cady Heron (Lindsay Lohan/Angourie Rice) returns from Africa with her zoologist parent(s), transitioning from homeschooling to entering the chaotic life of high school in the suburbs of Illinois.

She infiltrates the clique that rules the school, led by Regina George (Rachel McAdams/Reneé Rapp), but plans to take down the queen bee, helped by two new outsider friends. All goes well until she falls for Regina's ex-boyfriend. Then, it is an all-out war. The 2024 film is better

crafted and revisits many key moments from the original without feeling forced. The new standout performer is Avantika, Regina's minion Karen (Amanda Seyfried in the original), sliding effortlessly into the ditzy role and even playing off the meme-able "duh" moment to perfection.

The remake, shot digitally and yielding a true 4K source, is visually stunning on Ultra HD and has the edge over the original movie. It features a variable aspect ratio with the musical numbers framed at 2.35:1. Overall, the image has superb colors, bright specular highlights, strong shadow nuance, and crisp details throughout. The 2004 film has a 1.85:1 aspect ratio from its 35mm source. There's a tight grain structure that offers increased detail over earlier releases, and the image is free of source damage. Dolby Vision adds a slight boost to vibrancy with highlights that pop.

The 2024 remake is the clear winner for audio as well, with its lossless Dolby Atmos mix presenting a full low end and ambient overhead sounds during the musical numbers. There is a spacious spread of instrumentation during the songs and clean, full dialogue during the rest of the film. The original version of the film carries a basic but acceptable loss-less Dolby TrueHD 5.1 mix that presents clear dialogue and a subtle low end.

The original *Mean Girls* gets one new bonus featurette on 4K disc, "*Mean Girls*: Class of '04," highlighting the original cast; all other bonus content has been previously released. The 2024 film has over 30 minutes of extras, including a sing-along feature and music video with Megan Thee Stallion and Reneé Rapp.

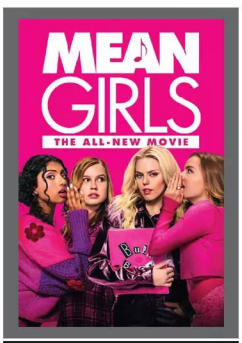
● **Brandon A. Duhamel**

ULTRA HD 4K BLU-RAY
STUDIO: Paramount
HDR FORMAT: Dolby Vision, HDR10
MPAA RATING: PG-13

Mean Girls

2004
ASPECT RATIO: 1.85:1
LENGTH: 97 mins.
STARRING: Lindsay Lohan, Rachel McAdams, Tina Fey, Tim Meadows

PICTURE	★★★★½
SOUND	★★★★
EXTRAS	★★★½



Mean Girls

2024
ASPECT RATIO: 1.85:1/2.35:1
LENGTH: 112 mins.
STARRING: Samantha Jayne, Arturo Perez Jr., Angourie Rice, Reneé Rapp, Auli'i Cravalho, Jaquel Spivey

PICTURE	★★★★½
SOUND	★★★★
EXTRAS	★★★½

Paramount

Pi

WRITER/DIRECTOR Darren Aronofsky's debut feature still pulses with the promise of a brilliant career ahead, swinging for the fences despite a meager budget and the limited technology of the era. *Pi* tells the story of Max Cohen, a tortured mathematical genius who sees the world as few do, detecting the patterns that exist all around us. He's searching for an elusive 216-digit number that could have applications in the stock market and even in the divine, but his obsession might be killing him, or driving him insane, or both. And then paranoia creeps in, as forces seek to exploit his not-so-beautiful mind. What the filmmakers lacked in dollars they more than made up for in creativity, yielding a brisk, gripping tale told with genuine tension.

Pi has been restored and remastered by indie label A24–which blew up the 16mm black-and-white original for IMAX exhibition last year in honor of the silver anniversary–now landing on disc in 4K and Dolby Vision. There's been a debate about the merits of Ultra HD editions of films from lower-quality sources, and let's just say that the format offers the opportunity for an exceptional preservation of a recent classic born of humble resources. Thankfully, the inherent grain is blatant rather than scrubbed away, while the whites have a tendency to be blown-out. Detail? Well, let's assume that if it was captured in the 5:3 Ultra 16 frame, we're seeing it here, but let's manage expectations, too. I will say one cleaned-up scene late in the narrative is noticeably sharper from the rest, making it seem purposefully different.

The choice to make the Dolby Atmos remix the only audio option might come as a surprise, until we watch the movie and understand that we are meant to join Max inside his ever-agitated brain, with all of the chaos that comes with it. Surround usage is somewhat restrained for much of the movie, which only increases its impact when a speaker is suddenly called into action or we're given a harsh sonic jolt.

The single disc carries two 1998 commentaries, one from Aronofsky and another from star Sean Gullette, in addition to a deleted scenes compilation and some behind-the-scenes footage, both with their own commentary. Also provided are a music video and a clip of the director accepting a Sundance Film Festival Award. This 4K release is exclusive to A24's online store and arrives in a slipcase with a set of six low-res photo prints from key scenes. ● **Chris Chiarella**

ULTRA HD 4K BLU-RAY
STUDIO: A24, 1998
ASPECT RATIO: 1.66:1
HDR FORMAT: Dolby Vision, HDR10
AUDIO FORMAT: Dolby Atmos with TrueHD 7.1 core
LENGTH: 84 mins., R
DIRECTOR: Darren Aronofsky
STARRING: Sean Gullette, Mark Margolis, Ben Shenkman, Pamela Hart, Stephen Pearlman, Samia Shoaib

PICTURE	★★★★½
SOUND	★★★★½
EXTRAS	★★★

A24

THE DEPARTED

THE DEPARTED is director Martin Scorsese's hard-hitting drama that tells the story of undercover South Boston rookie cop Billy Costigan, gangland chief Frank Costello, and Colin Sullivan, Costello's state police mole. Costigan is assigned to get close to Costello to obtain the evidence necessary to bring down his criminal empire. Sullivan's job is to keep Costello informed of all police movements and thwart their efforts. It isn't long before it's discovered by both sides that there are informers in their midst, which escalates the paranoia and the violence, leaving Billy and Colin to figure out each other's identities in order to save their own lives.

This unforgettable and powerful crime drama won four Academy Awards, including Best Picture and Best Director. I have seen it countless times and love the evolution of the relationships among the principal characters of Billy, Colin, and Frank. The narrative brims with superbly crafted situations and dialogue that ratchet up the suspense as we begin to suspect that not everyone will survive this high-stakes investigation. William Monahan's script, Martin Scorsese's direction and terrific casting make it one of the best films of its generation.

The 4K remaster was completed at Warner Bros. Discovery's Motion Picture Imaging and the results are excellent, providing a faithful reproduction that is bumped to the next level. The rendering of detail, definition, color delineation, and emboldened contrast increase its thematic impact. The subtle minutia visible in the clothing and facial features among the members of the cast is striking. Grain is rendered with a predominantly even and filmic essence. HDR adds a pleasing visual element that enriches both natural and artificial light while enhancing the purposefully dark, dreary sequences which embolden their blacks and shadow delineation.

The DTS-HD Master Audio 5.1 soundtrack is a gratifying surround mix with a high level of detail, superlative clarity, and room-filling sound. Dialogue is reproduced with lucid expression and prioritization. This engaging presentation offers solid bass extension while effectively drawing forth both large and small sounds, allowing their directional correlation with onscreen events to be definable within the room's acoustic boundaries.

The bonus features include a new featurette, "Guilt and Betrayal: Looking into The Departed," two previously released documentaries, and nine additional scenes with director introductions. The version we reviewed includes limited-edition steelbook packaging and a Movies Anywhere digital code.

The Departed is a personal favorite that is among the best genre films of its time. This Ultra HD release is another solid Warner catalog reissue. ● **Ralph Potts**

ULTRA HD 4K BLU-RAY
STUDIO: Warner, 2006
ASPECT RATIO: 2.39:1
HDR FORMAT: HDR10
AUDIO FORMAT: DTS-HD Master Audio 5.1
LENGTH: 151 mins. R
DIRECTOR: Martin Scorsese
STARRING: Leonardo DiCaprio, Matt Damon, Jack Nicholson, Mark Wahlberg, Vera Farmiga, Martin Sheen, Ray Winstone, Alec Baldwin

PICTURE	★★★★½
SOUND	★★★★½
EXTRAS	★★★½

Warner

HIGH NOON

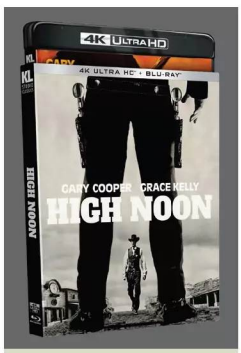
THREE DESPERADOES await their revenge-crazed leader, arriving at an isolated frontier town on the twelve o'clock train. Their target is the marshal, an honor-bound man of conscience who, despite this day being his wedding day, is committed to stand and fight rather than spend the rest of his life running. The impending gunfight will be four against one, so our hero seeks to form a posse, only to fail in every attempt as the fateful hour draws nearer.

The weight of the movie, like the weight of the responsibility, rests squarely on the shoulders of lawman Will Kane (Gary Cooper), whose increasingly sweaty, furrowed brow displays each disappointment and betrayal like a dagger to the heart. Tension builds as we feel the gravity of his mounting problems and growing despair as he moves toward a violent, unforgettable climax. *High Noon* shocked audiences with its bleak but timeless themes, echoing Hollywood's blacklist of the period. If fact, screen legend John Wayne's disgust with the script ultimately led him to make a more traditional, "American" western, *Rio Bravo*, in direct response to this movie.

Kino Lorber Studio Classics has undertaken its own 4K/Dolby Vision master off a fresh scan of the 35mm black-and-white camera negative with stellar results. Fine details abound in the pillarboxed image: perspiration-beaded faces, the weave and tight stripes of clothing, and seemingly every pebble on the dirt roads. Backgrounds, including delicate patterns in wallpaper, are rock-solid, though some shots are undeniably softer, likely dating back to the original photography. Contrast is reliably bold, with inky shadows organically resolved. Film grain is well preserved, although in some shots it combines with swirling dust to yield a touch of video noise, while camera pans over vertical lines (such as in a railing or fence) introduce modest flicker.

Mono audio is presented in split two-channel and serves the movie just fine with clear dialogue and minimal pops and hiss. Despite the soundtrack's limited dynamic range, Dmitri Tiomkin's musical score comes across as full and clear, effectively emphasizing the drama of key scenes.

The 4K disc carries a pair of new audio commentaries by historians Alan K. Rode and Julie Kirgo, also available on the Blu-ray Disc along with four featurettes and a text essay ported from Olive Films' 2016 "Signature" Blu-ray (January 2017 *S&V*). In a happy surprise, Leonard Maltin's long-missing 1992 "making of" program returns here. The discs arrive in a slipcase with reversible cover art, and this might be the first time I've actually reversed it. ● **Chris Chiarella**



ULTRA HD 4K BLU-RAY
STUDIO: Kino Lorber Studio Classics, 1952
ASPECT RATIO: 1.37:1
HDR FORMAT: Dolby Vision, HDR10
AUDIO FORMAT: DTS-HD Master Audio 2.0 Mono
LENGTH: 85 mins., NR
DIRECTOR: Fred Zinnemann
STARRING: Gary Cooper, Grace Kelly, Katy Jurado, Lloyd Bridges, Lon Chaney, Henry Morgan

PICTURE	★★★★½
SOUND	★★★½
EXTRAS	★★★★

Kino Lorber

S&V GIFT GUIDE

THE SEQUEL

By Chris Chiarella

When you have a hit, don't quit! Inspired in some measure by *Dune: Part Two*'s recent smash success on the big screen, we thought, why not revisit our curated sampler of new and exciting gifts you can treat yourself or someone else to? After all, Father's Day is right around the corner, and then there are all those birthdays and anniversaries that fall throughout the year. So we bring you this "sequel," packed with more 4K and Blu-ray discs and some cool gear—24 items in all.

Saw 10-Film Collection BLU-RAY (LIONSGATE)

This massive 10-movie set marks the upcoming 20th anniversary of the revenge-seeking, trap-setting, self-mutilating horror franchise, and it's brimming with sequels. *S&V* contributor Brandon DuHamel and I were recently discussing the merits of the series and I stand by my assertion that these movies found their groove early on and did a mostly respectable job giving audiences what they kept coming back for, in unflinchingly gruesome detail. They're all here in HD on Blu-ray (sorry, no 4K):

- **Saw (2004)**
- **Saw II (2005)**
- **Saw III (2006)**
- **Saw IV (2007)**
- **Saw V (2008)**
- **Saw VI (2009)**
- **Saw: The Final Chapter (2010) (A.k.a. Saw 3D, though strictly 2D here.)**
- **Jigsaw (2017)**
- **Spiral: From the Book of Saw (2021)**
- **Saw X (2023)**

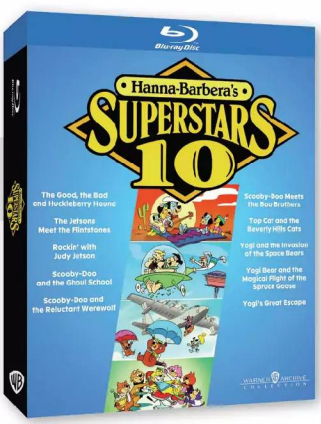
All appear to be straight repacks of existing discs—10 Blu-rays plus 13 companion DVDs in total—so you get a staggering amount of past bonus content, though some of the discs are not clearly marked, which can lead to some frustration. The first seven movies are unrated, while the final three carry an R rating along with a Dolby Atmos soundtrack. To round out the collection, Lionsgate includes a redeemable digital copy of each movie and a set of two-sided photo/art cards. **$58.62, amazon.com**

Hanna-Barbera's Superstars 10: The Complete Film Collection BLU-RAY (WARNER ARCHIVE COLLECTION)

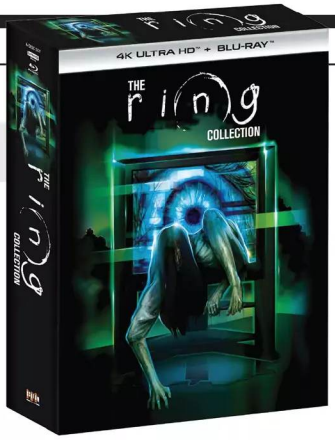
From September 1987 to November 1988, the Hanna-Barbera Studio released a series of made-for-TV feature films that revisited many of their most beloved cartoon characters—including three Yogi Bears and three Scooby-Doos—in new adventures, with the legendary Mel Blanc and other original voice performers returning for the occasion. Warner Archive recently assembled 10 of these films in Hanna-Barbera's Superstars 10, a gleeful tribute to a simpler time when the Jetson family, Huckleberry Hound, Fred Flintstone, and other iconic cartoon personalities entertained kids on Saturday mornings.

- **Yogi's Great Escape**
- **Scooby-Doo Meets the Boo Brothers**
- **The Jetsons Meet the Flintstones**
- **Yogi Bear and the Magical Flight of the Spruce Goose**
- **Top Cat and the Beverly Hills Cats**
- **The Good, the Bad and Huckleberry Hound**
- **Rockin' with Judy Jetson**
- **Scooby-Doo and the Ghoul School**
- **Scooby-Doo and the Reluctant Werewolf**
- **Yogi and the Invasion of the Space Bears**

All of the films have been remastered in high definition and are presented in their original 4:3 aspect ratio. In an interesting bit of animation history, the bulk of these films were made using traditional "cels"—a transparent sheet on which the animation is hand-drawn—while the final two were produced using digital ink and paint, which turned out to be the wave of the future for the medium. Back then the results



were still a little bumpy though, so Reluctant Werewolf and Space Bears are the least impressive of the otherwise colorfully punchy upgrades in this set. Extras include 1979's Scooby Goes Hollywood and 1972's environmentally themed, all-star Yogi's Ark Lark. **$60.08, amazon.com**



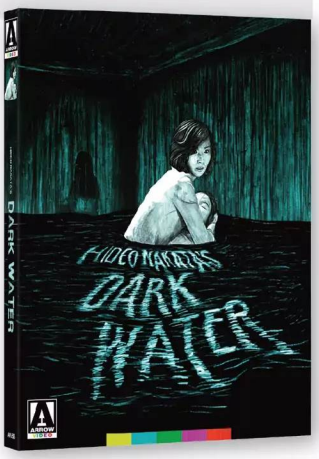
The Ring Collection 4K (SHOUT! STUDIOS)

The Ring is a true standout in the horror genre, owing largely to its original story, strong visual style, and taut direction of a terrific cast. The sequel holds its own, though viewers will want to check out the much-later "threequel" *Rings* to see how the trilogy plays out. All of the films have been freshly remastered in 4K with Dolby Vision high dynamic range—the first supervised by one-and-done director Gore Verbinski—and are also presented in HD on Blu-ray Disc:

- **The Ring (2002)**
- **The Ring Two (2005)**
- **Rings (2017)**

New extras join the original supplements presented here, including a feature-length documentary about the transition from Hideo Nakata's Japanese *Ringu* films to these American incarnations and an audio commentary on the first sequel. **$60.24, amazon.com**

Dark Water 4K (ARROW)



More Hideo Nakata, anyone? His 2002 J-Horror gem, Dark Water (also remade Stateside) makes a splash in familiar territory as a single mom faces the supernatural, this time in a mysterious—and leaky—apartment building. Arrow has paired the original Japanese lossless 5.1 with a 2160p Dolby Vision presentation, both of which go a long way toward maintaining the film's creepy mood. Extras include creator interviews, a vintage "making of," and a new companion booklet. **$31.99, amazon.com**

First Blood 4K STEELBOOK (LIONSGATE)
Rambo: Last Blood 4K STEELBOOK (LIONSGATE)

Proof that John J. Rambo's hemoglobin is good from the first drop to the last, Lionsgate has cleverly released the bookends to his five-movie saga in spiffy standalone steelbooks. As happens, the debut (the only one not "Rambo"-branded) is arguably the best of the entire lot, a powerful drama about the plight of returning Vietnam War veterans infused with intense action.

The coda, meanwhile, brings the pathos we'd hope for after 37 years, balanced by the violence we've come to expect. An HD Blu-ray, digital copy and archival extras are included with each set (generously so for First Blood) and the metal packaging is adorned with new artwork for these Walmart-exclusive editions, which is different from the artwork used in the five-movie set released in 2020. **$26.96, First Blood; $34.99, Rambo Last Blood**

We Are Rewind Portable Cassette Player

For anyone who used their portable cassette player a lot (me), took it everywhere (me) but dropped it more than once (also me), We Are Rewind's line of retro-styled players is a pretty big deal—a sort of spiritual "sequel" to my beloved Sony TPS-L2 Walkman. The blue "Kurt" model channels serious first-gen Walkman vibes with its aluminum body and big, chunky control buttons. Dust off your favorite old cassettes and get your hands on some blanks because Kurt can also record from stereo sources via its line-in jack. Oh, and don't forget to snap off those protection tabs on your homemade mixtapes to avoid unpleasant accidents.

Though Kurt triggers memories of a bygone era, the player includes a couple of 21st-century wrinkles: a 12-hour rechargeable lithium battery and Bluetooth 5.1 connectivity for streaming to a wireless speaker, making it the world's first wireless cassette player. (I can attest that those weren't a thing in the '80s.) Unfortunately, the player does not support today's wireless earbuds, but the company does offer an optional set of Walkman-esque on-ear wireless headphones for $52 that come with swappable foam ear cushions in black, yellow, and orange. In addition to blue, the cassette player is offered in orange (Serge), gray (Keith), and black with yellow highlights (Amy); Kurt, Serge, and Keith sell for $159, while Amy can be had for $169. **$159, wearerewind.com**

Star Trek II: The Wrath of Khan - The Making of the Classic Film by John Tenuto & Maria Jose Tenuto
(TITAN BOOKS)

Sociology professors by trade, husband and wife authors John and Maria Jose Tenuto always find fascinating insights in their explorations of pop culture, and this deep dive into one of the best damned sequels, arguably the best damned *Star Trek*, and quite simply one of my favorite films of all time, is no exception. An oral history touching upon almost all aspects of the making of *Star Trek II*, the research and revelation proffered within these photo-filled chapters range from delicious trivia to jaw-dropping profundity, ultimately transporting us to 1982 and into the 23rd Century. *Wrath of Khan* was something of a movie miracle, a low-budget underdog that managed to reinvigorate the entire franchise for decades to come. With the Tenutos' love of their subject evident on every page, this overdue yet certainly welcome coffee table tome is kinda miraculous, too. **$50, titanbooks.com**

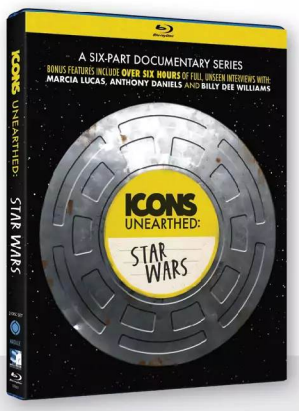
Star Trek II: The Wrath of Khan - Khan's Necklace Limited Edition Prop Replica
(FACTORY ENTERTAINMENT)

And now a little something for Khan aficionados who want to take their fandom a step further. Some of cinema's truly great props and costumes are fraught with subtext. Take for example the necklace Khan first wears ironically on Ceti Alpha V following the events of "Space Seed." It's a surprisingly complicated bit of kit, Khan's deep contempt for the Federation manifest in the broken Starfleet insignia and cannibalized techno-fragments he used to fashion his unique statement piece.

All of Factory Entertainment's prop replicas are born of exhaustive research, made for fans by superfans. After studying the surviving originals, the design team identified all of the individual vintage electrical components used by the prop makers more than 40 years ago. The parts of this necklace were recreated in solid metal, detailed right down to electrical wire of the correct gauge and color, then hand-finished to be virtually indistinguishable from the real thing. The necklace feels substantial when held and looks great when worn, even for those of us who lack pecs like those of the late Sr. Montalbán. It arrives packaged inside a beautifully illustrated magnetic-closure gift box with a numbered certificate. **$199.99, factoryent.com**

Icons Unearthed: Star Wars
BLU-RAY (MILL CREEK ENTERTAINMENT)

I devoured this TV docu-series upon first viewing and can't wait to jump in all over again now that it is available on Blu-ray. Directed by Brian Volk-Weiss in his own cheeky style, this is the behind-the-scenes tale of the classic *Star Wars* Trilogy and its three sequels, laid bare across six episodes with a runtime that is not parsed out in the way you probably expect. The always entertaining yarn-spinner Anthony Daniels, who played C-3PO in the Star Wars films, is here among the usual suspects along with important previously unsung participants like film editor/ex-wife Marcia Lucas (remarkably in her first-ever on camera interview) and set decorator Roger Christian, both of whom have revealing stories to tell. Unlike the TV series, with this Blu-ray release we are treated to several intriguing hours of additional interviews with Lucas, Daniels, and Billy Dee Williams (Lando Calrissian). **$29.99, millcreekent.com**



Return of the Jedi: The Accessories
(HEROESVILLAINS.COM)

Did somebody mention *Star Wars*? With summer fast approaching, how about a hike through your nearest woodlands, with gear inspired by the Original Trilogy's final chapter? The **Endor Hip Sling Bag** ($75, far right) offers pockets to spare and even a removable mini-pouch for earbuds or cash that you can reattach just about anywhere. The hardware and accents are sturdy and the netted bottle holder is slyly reminiscent of the trap the Ewoks used to scoop up Luke, Han, Chewie, and the droids.

Sling bag not your style? Check out at the compact **Return of the Jedi Utility Crossbody** ($95, right). It could pass for a compact messenger bag, and even converts into a backpack, sporting rough-and-ready waxed canvas for the main body, adorned with a collection of sweet embroidered patches from past travels.

Or maybe you or that special someone would rather slip into the **Rebel Commando Endor Cargo Vest** ($95, middle), part of Heroes & Villains' new line of sleeveless accouterments. The forest camouflage print will help you blend in while the distinctive embroidery lets you stand out. Because you can never have too many places to carry your stuff, there are asymmetrical cargo pockets plus a curved side-entry chest pocket for easy access opposite a zippered pocket for more secure storage. What I love most about H&V's designs is that each is unique, meaning they do a lot more than simply change up the color or decoration when they switch between the movies, TV shows, and celebrated characters in their ever-growing arsenal of licensed outerwear and accessories.

Universal Classic Monsters Limited Edition Collection
4K (UNIVERSAL STUDIOS)

Universal's impressive repackaging of its eight core monster classics, originally set for release during the 2023 holiday season, was one of the initial sparks for the prequel to this guide—that is, until it was delayed and pushed into the new year. The collection lands in an oversized hardcover book befitting the greatest menagerie of horror icons ever from a single studio. Shout-out to cover artist Tristan Eaton, who had previously created a series of monster murals on location at the Universal Studios backlot, but here combines the whole gang into a wicked mashup that includes that invisible dude (which couldn't have been easy to paint). The 4K discs included in the collection are:

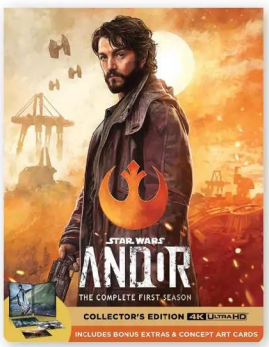
- ***Dracula* (1931)**
- ***Frankenstein* (1931)**
- ***The Mummy* (1932)**
- ***The Invisible Man* (1933)**
- ***The Bride of Frankenstein* (1935)**
- ***The Wolf Man* (1941)**
- ***Phantom of the Opera* (1943)**
- ***Creature from the Black Lagoon* (1954)**

Happily, the discs are packed on individual nubs instead of being jammed into cardboard pockets. Without exception, the movies benefit from outstanding 4K HDR presentations (all but Phantom in black-and-white), each served up on a single disc loaded with extras. Blu-ray discs are not included but you do get a full set of Movies Anywhere digital copies. **$129.99, amazon.com**

The Shootist
BLU-RAY (ARROW)

John Wayne's last movie plays much like a final tour of the battlefield, uniting him with past co-stars, cinema greats, and the next generation actors (Jimmy Stewart, Lauren Bacall, and Ron Howard, respectively). With poignant direction by Don Siegel, this was a western for a new era: The plot? A notorious gunslinger faces a bruising battle he can't win as his reputation follows him to what he had hoped would be a peaceful end. While not 4K and not presented in one of Arrow's industrial-strength slipcases, this is nonetheless a special edition through and through,. The poackage comes replete with a new HD remaster and audio commentary, some extremely insightful featurettes, a two-sided poster, and those always-nifty lobby cards. **$28, arrowvideo.com**

The Falcon and the Winter Soldier
THE COMPLETE FIRST SEASON 4K
Moon Knight
THE COMPLETE FIRST SEASON 4K
Andor
THE COMPLETE FIRST SEASON 4K
Obi-Wan Kenobi
THE COMPLETE SERIES 4K
(ALL WALT DISNEY)



Disney understands that *Star Wars* and Marvel fans love collecting physical media, hence four more series from the Disney+ streaming service have found their way to 4K disc. *Falcon* "sequelizes" shortly after the events of *Avengers: Endgame*, as Sam Wilson frets about what to do with Cap's shield and the world struggles with just about everything following the second snap. Spun off from the pages of *Werewolf by Knight*, *Moon Knight* is a psychological action/horror series also set post-*Endgame*, albeit less specifically so. Andor rewinds five years from *Rogue One,* a rule-breaking slow-burn that builds to an epic finale, delivering one of the best iterations of the galaxy far, far away since the original *Star Wars* trilogy. *Obi-Wan* unfolds about midway between Episodes III and IV and, although not my personal favorite, it brought a few surprises and the return of the oh-so-affable Ewan McGregor as the o.g. Jedi Knight.

These are all big-budget shows with high production values, presented here in native 4K with HDR10 (you get Dolby Vision on Disney+) and Dolby Atmos. Each is an improvement over the streaming versions, spread across twin 100-GB discs (three for Andor, actually) with more than ample bitrates for a difference we can see and hear, notably in the shadow detail and bass reproduction respectively, with a special shout-out to the creative Atmos implementation on Moon Knight. All arrive in glossy steelbook cases with box art by Attila Szarka and include lots of featurettes and a handful of colorful concept art cards. **$44.96, The Falcon and the Winter Soldier; $44.96, Moon Knight; $55.99, Andor; $44.96, Obi-Wan Kenobi**

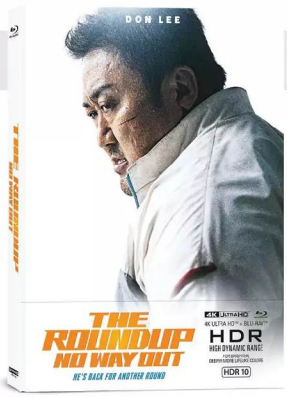
The Beatles Collector's Advent Calendar (INSIGHT EDITIONS)

Advent calendars are great fun, so why should they only be enjoyed in December? Turns out they're available year-round, and one of the coolest we've seen delivers a collection of compact, often surprisingly useful mini-gifts that celebrate the reign of the Fab Four, each created specifically for this assemblage and hidden inside one of the 22 drawers and two envelopes. Open one a day and that's exactly three weeks in Beatle Time, or devour them all at once—whatever makes you happy. And if you're like me, you'll pause to marvel that someone dutifully packed each and every one of these compartments, most of the contents wrapped in festive Beatles tissue paper. So as not to give too much away, my favorites are #3, #12, and #14: correspondence-focused pencils that will provide years of enjoyment every time you write a card or letter. The mini-gift designs are quite clever and look great on display when not in use, and the quality is a cut above with many crafted from ceramic, wood, cotton, or metal. Even the "calendar" itself is its own present, a scaled representation of Billy Shears' bass drum from Sgt. Pepper's. **$150, insighteditions.com**

The Roundup: No Way Out 4K (CAPELIGHT PICTURES/MPI)

A sequel not to Kevin Costner's 1987 thriller *No Way Out*, but to the 2022 South Korean crime thriller *The Roundup*, which in turn was a sequel to 2017's *The Outlaws*, a trio of films known collectively as the Crime City series with a fourth chapter on the way. (Similar to how China's Police Story III was rebranded Supercop, you don't have to watch the first two films to jump onboard.) Police dramas have been done so many times here in the States that it's refreshing to see the well-worn formula through a different lens, especially with a star like Ma Dong-seok (also known as Don Lee, one of the Eternals), a dynamic force of nature who along with his team is out to stop more really, really bad guys, whatever it takes.

This media-booked collector's edition arrives on disc in native 4K along with a DTS-HD Master Audio 5.1 soundtrack that includes the original Korean language track and an English dub. **$36.05, amazon.com**



RED 2-Film Collection 4K STEELBOOK (LIONSGATE)

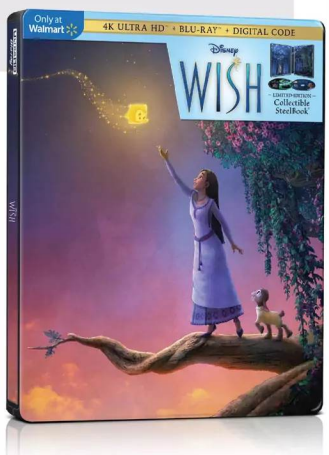
As I personally inch closer to being "RED" ("Retired, Extremely Drowsy" in my case), these adaptations of the Warren Ellis/Cully Hamner comic book about graying covert agents take on new relevance. These oldsters might be past their prime, but that doesn't mean they can't still kick some butt, and kick they do. In another Walmart exclusive, *Red 1* (2010) and *Red 2* (2013) are reissued here on 4K and HD Blu-ray in a metal-encased steelbook. Both are extremely enjoyable action/comedies, presented in Dolby Vision with killer Atmos sound and featuring star-studded casts that include Bruce Willis, Morgan Freeman, John Malkovich, Helen Mirren, and Brian Cox, who can do no wrong. Extras include a complement of deleted scenes but the niftiest bonus might be the commentary by an actual retired CIA field officer. **$34.96, walmart.com**

Aquaman and the Lost Kingdom 4K (WARNER)

This sequel to the DC Extended Universe's biggest hit (I know, right?) might have brought Zack Snyder's experiment in interconnected superhero movies to a screeching halt. Still, Jason Momoa's late-2023 undersea adventure is a dazzling demo disc, just like its predecessor. The sprawling, fantastical opus is a Dolby Vision/Atmos wonder with its bold comic book hues, tiny details, and wild front-to-back/top-to-bottom/side-to-side 360-degree surround-sound action. **$29.95, amazon.com**

Wish 4K (WALT DISNEY)

Except for the fun of spotting Disney Easter eggs (reportedly more than 100 in all), *Wish* isn't quite my bag, but your kids will dig it. Its sumptuous colors and immersive Atmos mix make for some great showoff material. *Wish* is only available on 4K disc as part of a steelbook combo pack—and a rather spiffy one at that—sold exclusively at Walmart. **$34.96, walmart.com**



DEEP PURPLE: *MACHINE HEAD*

SUPER DELUXE EDITION BOX SET

Machine Head is one of those perfect storm albums. As Deep Purple entered the 1970s, they undertook a creative shift from the psychedelic blues/pop of their late-'60s origins—embodied by hits like 1968's perpetually catchy "Hush" and their cover of Neil Diamond's "Kentucky Woman"—to move into full-on rock overdrive with June 1970's *Deep Purple in Rock* and July 1971's *Fireball*. With that tableau firmly set, Deep Purple ramped it up yet another notch to construct March 1972's truly seminal *Machine Head*, which features enduring hard-rock staples like "Smoke on the Water" (ahh, that right-of-passage guitar riff), "Highway Star" (their 8-cylinder vehicular love letter), and "Space Truckin'" ("Come on!") among them.

Deep Purple and their team have certainly chosen an intriguing route to celebrate 50 years of *Machine Head*—though, technically speaking, it's actually *52* years, at this point—with a 3CD/1LP/1BD super deluxe edition anniversary box set on Warner Records that centers around both the 2024 stereo and Dolby Atmos remixes of the core album done by Dweezil Zappa. Dweezil has been aligned with DP for decades, seeing how his dad Frank Zappa was namechecked on "Smoke on the Water," not to mention his playing guitar with them live. Considering Dweezil's all-in verve about Atmos, he's more of a logical choice for doing these critical remixes than some may have initially thought.

Before we get to the sonics, we must first handle the stats. The purple-smoke color vinyl contains Zappa's 2024 stereo remix of the original album, with the "When a Blind Man Cries" B-side added to Side 2's running order. CD1 houses Dweezil's 2024 stereo remix plus the 2024 remaster of the original by Andy Pearce and Matt Wortham. CD2 holds 10 live tracks recorded on March 9, 1972, at the Paris Theatre in London during the outset of the Machine Head Tour that were previously released on the 2012 40th Anniversary Deluxe Edition 4CD/1DVD import box set on Deep Purple Records/EMI. CD3 contains nine previously unreleased tracks recorded on April 16, 1971, at the Montreux Casino in Switzerland, the locale where the incidents recounted in "Smoke on the Water" fatefully occurred. Finally, the Blu-ray offers Zappa's Atmos remix of the main album plus Peter Mew's 1974 U.S. quad mix and three Dolby Digital 5.1 mixes by Paul Klingberg that were also included on the aforementioned 2012 import box.

The new *Machine Head* box's glossy, hardcover outer shell is LP size—12½ x 0¾ x 12½ inches (w/h/d)—a slimmer footprint sure to please the shelving-challenged amongst us. The slide-out gatefold holds the LP within its inner-left opening in a black, plastic-lined sleeve—and, yes, I too would have preferred the LP's presentation mirror the original album's packaging instead. The 3CDs and 1BD are nestled in two rows of evenly spaced slots on the right side of the gate in what I call Goldilocks-styled "just right" fashion—not too snug to remove, but not too loose either. Also included are a 20-page saddle-stitched booklet with liners, session photos galore, and a poster-size lyric sheet in white script on a purple background.

The more aurally adventurous among us are in for one helluva ride. Dweezil's stereo remix will indeed grab you in somewhat unexpected ways (a la "Never Before"), but it's in Atmos where *Machine Head* gets to do some literal space truckin' nonpareil. "Highway Star" is a balls-out ferocious assault wherein you can discern the layers in Ian Gillan's stacked lead vocal tracks and get blown over by the clockwise swoosh of the keys-and-guitar-solo section. The 1974 quad version of "Highway Star" is a bit more compartmentalized, though you really do feel Ian Paice pummeling his drum kit. Back in Atmos, Ritchie Blackmore's searing guitar solo on "Smoke on the Water" takes to the upper stratosphere—and be sure to listen for the vocalized, FZ-related Easter egg at the very end. Jon Lord's keyboard clinic all throughout "Lazy" in Atmos almost makes the 2012 5.1 mix seem like it's, well, sleepwalking.

As for the live material, CD2's "Maybe I'm a Leo (Soundcheck)" has a cooler, looser improv vibe in the noodly instrumental break than the actual show performance does. CD3 is indeed of a historical nature, considering when/where it occurred in Montreux, but since it was sourced from an audience recording, the SQ isn't up to audiophile standards. That said, its content *can* be enjoyed for what it is—and I do very much dig Gillan's wail in the middle of "Child in Time"—but be aware the sound is a few ticks above bootleg quality at best.

If you're a *Machine Head* purist, you may be reticent to embrace Zappa's remixes on this box set, if that soothes your purple heart's content. But if you're willing to open your ears and really *hear* how Zappa made this iconic music breathe even deeper in new and exciting ways—most especially in Atmos—then the 2024 edition of Deep Purple's *Machine Head* will light a fire in the audio sky as never before. ● MIKE METTLER

3CD/1LP/1BD

Label: Warner Records

Audio Formats: 16-bit/44.1kHz LPCM stereo (CD); 24-bit/96kHz Dolby Atmos, 24-bit/96kHz quad, 24-bit/96kHz Dolby Digital 5.1 (BD)

Number of Tracks: 60 (34 on 3CDs; 8 on 1LP, 18 on 1BD)

Length: 6:16:30 (3:58:27 on 3CDs; 42:17 on 1LP, 1:35:46 on 1BD)

Producers: Deep Purple (original album); Pete Dauncey (In Concert '72)

Engineers: Martin Birch (original album); Adrian Revill (In Concert '72); René Ernest Finger (Montreaux '71); Peter Mew (1974 U.S. quad mix); Paul Klingberg (2012 5.1 mix); Dweezil Zappa (2024 stereo remix, 2024 Atmos remix); Andy Pearce, Matt Wortham (2024 remaster); John Webber (2024 vinyl lacquers)

Performances ★★★★★
Sound ★★★★½

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The Castle Started Spinning

PRINCE AND THE REVOLUTION: *PURPLE RAIN*

IN THE summer of 1984, two ascending musical forces vaulted themselves into the megastar stratosphere on a parallel tract that would be virtually impossible to duplicate today. Bruce Springsteen upped his own iconography by touring stadiums in support of *Born in the U.S.A.*, a perpetually catchy album whose underlying message actually served to tear down the tenets of the American mythos. At the same time, Prince and The Revolution dominated the charts with *Purple Rain*, the ostensible soundtrack to the low-budget box-office phenomenon of the same name that chronicled the rise of "The Kid" and his killer Minneapolis-bred band, despite their respective struggles with a myriad of mental and physical obstacles alike.

Because *Purple Rain* was so ubiquitous that fateful summer and beyond, I actually bypassed buying the June 1984 Warner Bros. LP until about three years later when I became obsessed with my still-favorite Prince album, March 1987's Paisley Park 2LP set, *Sign o' the Times*. For collector's purposes I obtained the 1987 Warner Bros. Redbook CD (or should that be Purple-book?), but I really only listened to Warner's subsequent 1991 CD and 2008 digipak CD, respectively. As for the wax, I recently picked up the 2017 Warner Bros. limited-edition picture disc LP for the collection, and the 2021 NPG/Warner Records purple vinyl edition for playback. Sometimes color vinyl can be a bit wonky, but that purple LP delivered the unbridled fury of the full-on squeal of Prince's balls-out, show-stopping guitar solo denouement on "Let's Go Crazy" (Side 1, Track 1) as well as the raw-nerve harmonies and strings-laden emotionality of "Purple Rain" (Side 2, Track 4).

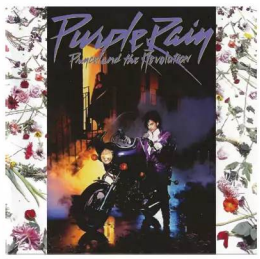
The definitive version of *Purple Rain* remains the 2017 NPG/Warner Bros. 3CD+1DVD Ultimate Collector's Edition, which boasts the 2015 Paisley Park remastered version of the original album on CD1, 11 tracks subtitled *From the Vault & Previously Unreleased* on CD2 ("The Dance Electric" is 11 minutes of pure funk magic), and 15 single edits and B-sides on CD3 (the extended version of "Erotic City" is as sultry as ever). *Live at the Carrier Dome, Syracuse, NY, March 30, 1985* comprises the DVD, featuring the band fully en fuego at an of-era peak. Naturally, I would hope the powers that be at NPG HQ will reissue this collection in its entirety as concurrent multidisc vinyl and CD/BD box sets, akin to what they've done in recent years with their elaborate multiformat boxes for October 1982's *1999*, the aforementioned *Sign o' the Times*, and the New Power Generation-incarnation gem, October 1991's *Diamonds and Pearls*. Seeing how *D&P* received the Atmos treatment on BD for its 2023 reissue, *Purple Rain* deserves proper 360-degree deployment. Just think of how the height channels would handle Matt Fink's Memorymoog burbles and synth swoops on "I Would Die 4 U."

To this day, I remain endlessly fascinated that there is *no* bass whatsoever on *Purple Rain's* lead single and instant No. 1 multiweek smash, "When Doves Cry." Who better to ask about the song's lack of low-end content than Revolution bassist Brownmark—and that's exactly what I did when we sat down together in The Revolution's Atlantic City dressing room in August 2017. "That was one of those songs Prince brought to us after he had already been in the studio," the bassist recalled. "He came to me directly because he didn't want me to feel bad about it. He said, 'Now, you'll notice there's no bass.' And I said, 'Uh, well, *yeah!*' He said, 'Don't think it's because of anything you did.'"

Was Brownmark bothered by Prince's, er, bass-less decision? "No, because it really sounds *great*," he replied. "It had never been done before. After I listened to it, I said to him, 'You know, you're right. Even if it had bass, it wouldn't sound good. It would wreck the song.'" Once Prince and The Revolution began performing "Doves" live—which you can both see and hear on the *Carrier Dome* DV—and Brownmark finally got to add his own stamp to it. "Live, I put some *rumble* on it—and it fills it up greatly," he noted with a smile. "Here, I'm what you call a 'ghost-note' player. I was notorious for that back in the '80s, and Prince *likes* that. He always did. It's basically all *feel*—but you'll never figure out what I'm playing."

Purple Rain shot Prince and The Revolution into the realm of international superstardom, and they continued to work together on and off in various incarnations essentially up to his untimely passing in 2016. Until we get an Atmos-ized spritz of *Rain*, let's go nuts and bask in the collective zeitgeist glow of The Kid and his impeccable band, for this is what it sounds like when Prince's very soul cries. ● **MIKE METTLER**

▲ 1984 Warner Bros. LP



▲ 1987 Warner Bros. CD

▲ 2017 NPG/Warner Bros. 3CD+1DVD back cover

▲ 2017 NPG/Warner Bros. 3CD+1DVD booklet band shot

▲ 2023 NPG/Warner Records picture disc

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